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ABSTRACT

Summarized are major findings of a 2-year Title III project serving educable mentally retarded (EMR) students in approximately 100 special education classes in eight regions of Ohio. The program is said to have been designed to meet the following goals: to create behavioral objectives for the EMR curriculum, to train teachers of EMR students to write and field test the behavioral objectives, and to develop a system to evaluate the effect of various program models on the behavior of EMR students. It is reported that behavioral objectives have been developed in 14 curriculum areas such as learning to earn a living and learning to manage money, that eight models (self contained, modified self contained, selected academic, selected educational, half time placement, learning center, and mainstream) have been field tested, and that a test with items representing all curriculum areas has been given to students in the model classrooms. Evaluation is said to indicate a need to continue to refine the objectives into a major curriculum for EMR students, to develop the teacher training component utilizing regional and university staffs, and to continue to initiate more model classes and evaluate student progress. (DB)

ED 089521

Program Models For EMR Students

SECOND YEAR EVALUATION

February 1, 1972 – January 31, 1973

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ESEA TITLE III

#45-72-207-2

EC061489

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A. SUMMARY

A SUMMARY
"PROGRAM MODELS FOR EMR STUDENTS"
OHIO ESEA TITLE III PROJECT #45-71-207-2

A project involving eight regional sattelite centers and a State-wide coordinating center was created to implement objectives meeting the following needs: 1. create behavioral objectives for the EMR curriculum, 2. train teachers of EMR students to write and field test the behavioral objectives, 3. develop a system to evaluate the effect of various program models on the behavior of EMR students.

During the two years of the project hundreds of EMR personnel in urban, suburban, and rural school districts across the State were involved in activities to meet these needs. Objectives were developed in fourteen curriculum areas and form the basis for a curriculum. Eight models were created and 99 different classes of students were initiated. A test was created which represents items in all fourteen curriculum areas and was given to all students in these model classrooms. An evaluation system was created and is being used.

Conclusions and recommendations indicate a need to continue to refine the objectives into a major curriculum for EMR students, to develop the teacher training component utilizing not only the regional staff but also nine university staffs, and to continue to initiate more model classes and evaluate student progress.

B. CONTENT DESCRIPTION

B CONTEXT DESCRIPTION

Programs for educable mentally retarded (EMR) students have had a long history in the State of Ohio. Individual school districts have sponsored programs since the 1890's when Cleveland Public Schools initiated the first special classes. In 1944-45, the Ohio Legislature took action to place the responsibility of a State-wide program with the Ohio Department of Education. Since that time, nearly 24 years ago, a great number of students have progressed through an increasingly larger number of classes. In 1960-61, 207 school districts employed 855 teachers to provide instruction for over 13,000 students. As a result of the largest expansion in its history, Ohio opens the 1970-71 school year with 498 school districts employing 3,192 teachers of 46,915 educable mentally retarded children. Incidence figures indicate that this number is approximately 63 percent of all students who could qualify for the program.

There were three needs within the EMR program toward which the efforts of this project focus. First, there was a need to develop a method of evaluating the effectiveness of EMR programs. Second, there was a need to evaluate existing models of EMR programs to determine which are most effective. Third, there was a need to develop a process of implementing the results of this project with teachers of EMR students.

Need to Develop Method of Evaluation

Research studies conducted in Ohio (Crim, 1969) indicate that 80 percent of the students who are successful in the EMR curriculum are maintaining good employment record as adults. Contrary to this, 70 percent of the EMR children who drop out of school at 16 years of age or before become dependent on state and local tax funds in the form of welfare payments or institutional costs.

The effectiveness of these programs, however, have been challenged by other criteria than that of this research in Ohio.

In an attempt to determine the most appropriate educational program model for the EMR, a number of research studies have been undertaken since 1932. The primary approach utilized has been a comparison of EMR children placed in special classes with EMR children remaining in regular classes.

An examination of these studies indicate inconclusive findings: Bennett (1932), Pertsch (1936), Johnson (1950), Cassidy and Stanton (1959) report that the children left in the regular grades are, on the whole, superior academically to the children assigned to special classes.

Regarding social acceptance and social adjustment, Johnson (1950-1962), Baldwin (1958), Jordan (1959), indicate that the regular class does not provide a social climate conducive to healthy emotional development, and Cassidy and Stanton (1959), Goldstein (1964) indicate that the special class group showed superior social adjustment.

Still other studies Wrightstone et. al. (1959), Ainsworth (1959) indicate no significant differences among the groups in academic achievement.

There is presently no adequate criteria against which programs can be compared. Research over the past 40 years has used academic achievement, social acceptance, and I.Q. gains as criteria to evaluate EMR success. Commenting on past research, Kirk (1964) indicates that all of the completed studies suffer from the problems of *in situ* investigation.

None controlled the essential variables needed for adequate inference. One of the weaknesses cited by Kirk is the poor reliability and validity of the measurement instruments used in comparative studies. This lack of "effectiveness criteria" is a basic source of contradictory and equivocal research of efficacy of EMR classes.

Current educational emphasis on the development of specific behavioral objectives may offer the most significant advancement in educational evaluation in recent decades.

Emphasizing this need, Bloom (1956) points out, "It should be clear that objectives are not only the goals toward which the curriculum is shaped and toward which instruction is guided, but they are also the goals that provide the detailed specification for the construction and use of evaluation techniques." (P. 27). Also, Mager (1962) states, "When clearly defined goals are lacking, it is impossible to evaluate a course or program efficiently." (P. 3)

Meyen (1968) suggests that the vagueness of educational objectives for the educable mentally retarded forces teachers to resort to personalized interpretation which may result in unwarranted emphasis being placed on skills and concepts which may be inappropriate. The vagueness of these educational objectives make assessing achievements of the EMR an almost impossible task.

In view of the past research, it is clear that one of the major obstacles preventing an effective evaluation of the educable mentally retarded program has been the lack of specific measurable objectives to be used as evaluation criteria. Therefore, in order to determine the most appropriate educational program, the development of these objectives was essential. <u>There was a need to develop a series of measurable behavioral objectives to be used by educators as evaluation criteria for judging the effectiveness of EMR classes</u>.

<u>Need to Evaluate Existing EMR Models</u>

The Ohio Division of Special Education program has been growing dramatically in the last decade and has been somewhat successful (based on follow-up data) as noted previously. However, it was apparent with continuing increases in units for EMR students and with population projections, that the self-contained classroom model would not be efficient in the future. Consideration of this matter took into account the teacher shortage, the classroom shortage, the cost per pupil factor, and the crisis in educational financing. In addition to this, is a rising national movement to completely restructure the self-contained classroom model as it now exists (Dunn, 1968). The basic argument is that the self-contained class is, in fact, an unconstitutional segregation of a group of students into a tracked educational program. The issue has received several court hearings including the Judge J. Skelly Wright decision in the District of Columbia in 1967. Judge Wright ordered that the tracking system be abolished, an action which dumped hundreds of EMR students back into regular education classes overnight. <u>It was imperative that an evaluation of existing models of educating EMR students be conducted to provide direction for future programs</u>. It was anticipated that in the second and third phases of this proposed project, several different educational EMR models would be evaluated on the basis of the behavioral objective criteria and other identifiable factors to determine the most effective methods of educating these students.

Need to Implement Results of This Project

The third statement of need, out of which this project was designed, is centered around the problem of dissemination of research results and the implementation of the conclusions at the local school district level. The common cry of educators for decades and the common criticism of educational research has been the fact that research results are either extremely slow in grass-roots effectiveness or without impact on the local level. There was a need to develop a process of change in the educational milieu which would effectively change the behavior of teachers and students as quickly as research evidence is available. This project attempted to meet this need by working with a substantial number of teachers throughout the project in an effort to change their behavior as research results indicate.

To carry out the objectives of this project, eight satellite centers were established in Ohio. Figure 1 indicates the regions which were covered by those satellites.

Figure 1

The Coordinating Center, located in Mentor, Ohio, provided direction for the implementation of the activities. Chart I shows the staff and financial arrangements for the satellites.

An Advisory Board was established to oversee and direct the project. This Board consisted of local representatives from each region, the satellite coordinators, representatives from the Ohio Division of Special Education and the Ohio ESEA Title III office. Chart I also shows the composition of that Board. Each satellite area carried out the intent of the project in their local area and reported back to the Coordinating Center and Advisory Board.

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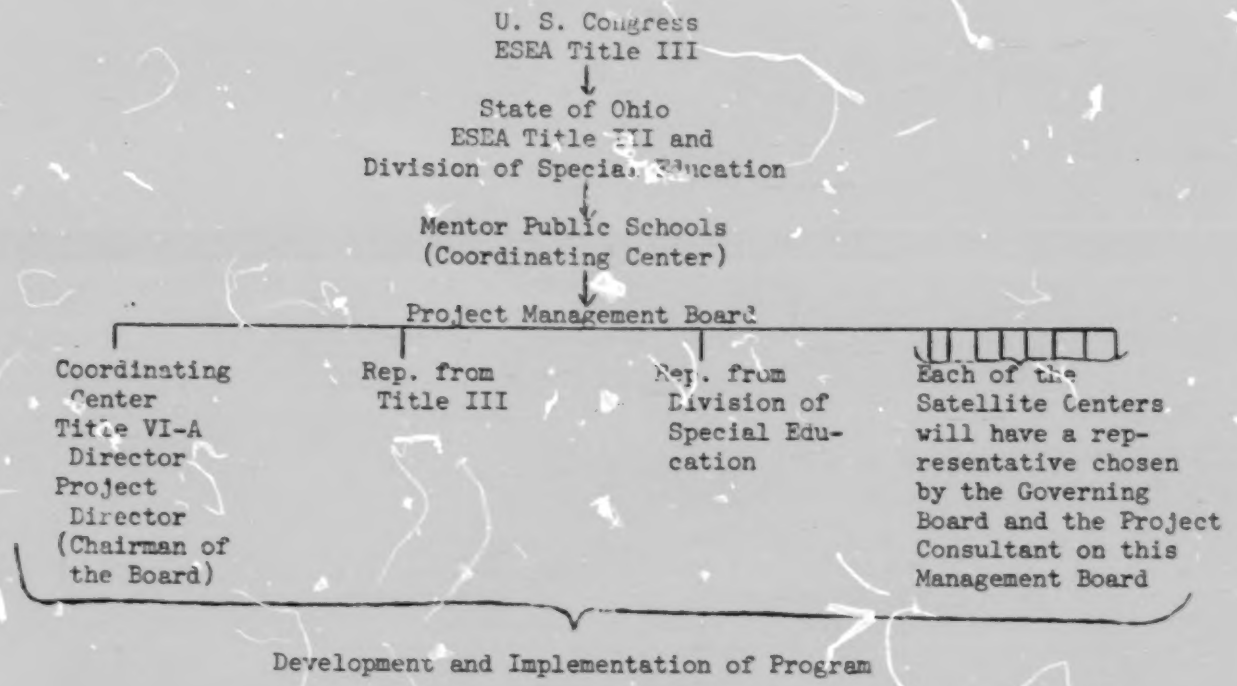
CHART I

PROJECT MANAGEMENT


U. S. Congress
ESEA Title III
State of Ohio
ESEA Title III and
Division of Special Education
Mentor Public Schools
(Coordinating Center)
Project Management Board
Coordinating Center Title VI-A Director Project Director (Chairman of the Board)
Rep. from Title III
Rep. from Division of Special Education
Each of the Satellite Centers will have a representative chosen by the Governing Board and the Project Consultant on this Management Board
Development and Implementation of Program

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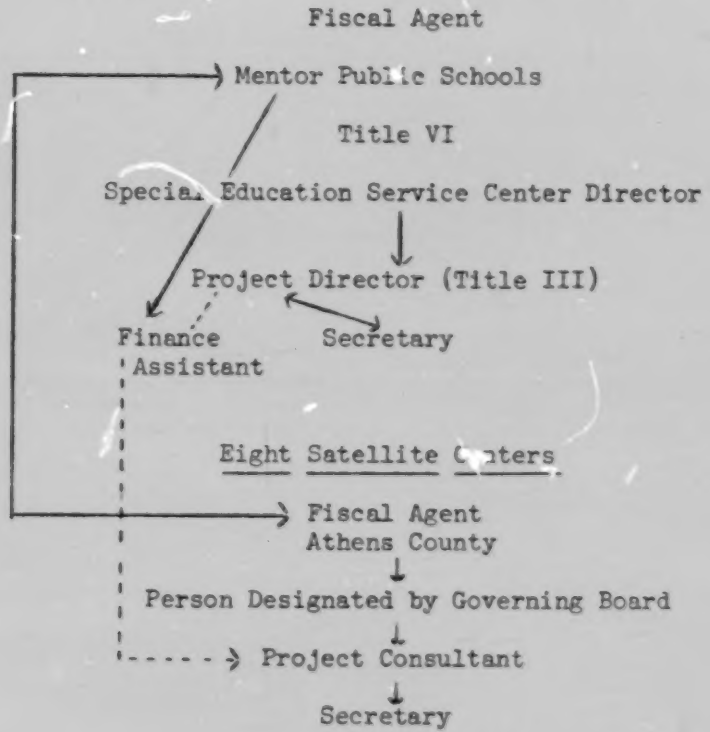
STAFF AND FINANCIAL ARRANGEMENT



C. PROGRAM EXPLANATION

C PROGRAM EXPLANATION

Total federal support under ESEA Title III	$ 474,000.00
Total federal support other than under ESEA Title III	$ -0-
Total nonfederal support	$ -0-
Total project cost	$ 474,000.00
Total evaluation cost	$ 52,467.84

Local Education Agencies Served by the Project.

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Akron City	Brunswick High	1930	24
	Brunswick Towslee	580	9
	Sharon Elementary	560	12
	Wadsworth Isham	875	12
	Medina Junior High	1500	12
	Garfield Elementary	940	9
	Lodi Elementary	665	12
	York Elementary	630	10
	Highland High	770	15
	Cloverleaf High	810	15
	Field Street High	667	12
	Bradshaw Rootstown	550	12
	Southeast Elementary	1804	22
	Garfield Elementary	868	10
	Rausch Elementary Ravenna	740	11
	Waterloo Elementary	637	9
	Garrettsville	316	12
	Streetsboro High	829	13
	Streetsboro Junior High	461	11
	Wise Elementary	598	41
	Barberton High	1746	18
	Norton High	1400	13
	Schrop Junior Green Twp.	565	14
	Norton Sherman	345	11
	Roberts Junior High	793	31
	Lady of the Elms	70	15
	Mason	814	31
	Eyre Junior High	1492	11
	Crouse	834	14
	Essex	415	10
	Goodyear Junior High	1303	25
	Buchtel High	1618	18
	Tallmadge High	980	14
Ashtabula	West Junior High	701	18
	Geneva Elementary	652	16
	Grand Valley Elementary	600	26

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Ashtabula continued	Jefferson High	478	16
	Lakeview High	180	16
	Liberty High	747	17
	North Elementary	465	22
	Maplewood East	426	28
	Farmington Elementary & High	425	16
	Pymatuming Valley High	497	19
	Pymatuming Valley Elementary	707	15
	Wallace Braden Junior High	832	20
	Maplewood High School	400	18
	Girard High School	1204	39
	Newton Falls High	510	14
	Champion Center Elementary	883	16
	LaBrae Middle	600	17
	1st Street Elementary	474	42
	Poland Senior	679	15
	Springfield Elementary	590	14
	New Springfield Elementary	254	8
	East High	1275	16
	Washington Elementary	546	12
	Rayen High	1221	32
	Lordstown Elementary	395	12
	Market High	245	48
	Matthews	577	19
	East Junior High	708	14
	Conneaut High	786	18
	Geneva Junior High	682	28
	Pymatuming Junior High	133	15
	Bazetta Elementary	430	14
	Austenburg	477	16
	Williamfield Elementary	189	14
	Chestnut Elementary	412	15
	Berlin Center Elementary	344	13
	Maple Ridge Elementary	366	14
	John Davis Elementary	515	12
	Lincoln Middle	684	17
	John White	444	14
	Mary Haddow	436	14
	Jefferson	485	14
	Bascom Elementary	400	13
Athens	Crooksville Exempted Village	1346	18
	New Lexington City	2268	24
	Northern Local	2125	18
	Logan City	3688	15
	Vinton Local	2502	24
	Jackson City	3403	15
	Wellston City	2410	30
	Morgan Local	3129	15
	Alexander Local	1555	14
	Athen City	3856	15
	Federal Hocking Local	1720	13

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Athens continued	Nelsonville York City	2115	42
	Meigs Local	3060	30
	Gallipolis City	2241	17
	North Gallia Local	965	15
	Fort Frye Local	1748	9
	Marietta City	5516	30
	Switzerland of Ohio	4958	14
	Caldwell Exempted	1505	10
Hamilton	Ach Junior High	756	19
	Columbian Elementary	525	15
	Greenhills Middle	920	13
	Harrison Elementary	986	12
	Heinold Junior High	1057	20
	Lincoln Heights Elementary	776	12
	Lockland Middle	653	9
	Merry Junior High	755	20
	North College Hill High	1050	16
	Robert E. Lucas Int.	756	37
	Sawyer Junior High	1045	24
	Sherwood Elementary	900	25
	Terrace Park Elementary	340	25
	Washington Elementary	778	15
	Withrow High	2599	10
	Harding Junior High	1024	13
	New Miami Middle	430	12
	Roosevelt Middle	786	18
	Somerville Elementary	195	12
	Berry Middle	1250	17
	Francis Dunlavy	440	11
	Hampton-Pennett Elementary	500	15
	Pennyroyal Elementary	380	29
	Batavia High	320	16
	Cook Elementary	850	23
	Clermont Northeastern High	850	29
	Goshen Primary	1100	12
	Merwin Elementary	670	14
	Milford High	1125	12
	Clarksville Elementary	625	8
	Cedarville High	403	21
	West Main Elementary	680	8
	Jefferson High	575	23
	Page Manor Elementary	775	14
Louisville	Louisville High	1020	15
	Trump Road Elementary	305	12
	North Industry Elementary	397	15
	Marlington Middle	900	16
	Edison Junior High	1610	14
	Jackson Elementary	818	10
	McKinley Elementary	581	15

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Louisville continued	McKinley High	2038	18
	Pleasant Grove Elementary	400	12
	Reilly Elementary	540	13
	Horace Mann Elementary	89	13
	Hoover High	1200	12
	Morgan Elementary	426	12
	East Liverpool High	1350	18
	North Street School	530	12
	Walker Junior High	550	18
	Middlebranch Junior High	950	15
	Hazel Harvey Elementary	758	12
	Lincoln Elementary	554	14
	North Street School	530	13
	T. C. Knapp Elementary	635	15
	Lura B. Kean Elementary	150	12
	Summit School	926	12
	Orrville High	748	22
	Mary Irene Day	960	14
	Jackson Elementary	818	12
	Sandy Valley High	1050	18
	Reilly Elementary	540	12
	Marlington Middle	900	14
	Sauder Junior High	1075	16
	Lake Middle	800	13
	Lake Middle	800	12
	East Sparta	245	15
	Waynesburg	275	16
	Dawsett Elementary	550	13
	Dawsett Elementary	550	12
	Osborn Elementary	455	16
	New Albany Elementary	525	10
	Brown Elementary	195	12
	Brown Elementary	195	12
	Avondale Elementary	520	12
Mentor	North High - Willoughby-Eastlake	2175	14
	North High - Willoughby-Eastlake	2175	12
	South High - Willoughby-Eastlake	1400	15
	South High - Willoughby-Eastlake	1400	11
	Willowick Junior High	2300	22
	Willowick Junior High	2300	12
	McKinley	414	13
	Royalview	979	12
	Shoregate	495	11
	Shoregate	495	12
	Claridon Elementary - Berkshire	228	15
	Middlefield Elementary - Cardinal	587	11
	Kenston Middle School - Kenston	633	19
	Chester Elementary - West Geauga	543	8
	Chester Elementary - West Geauga	543	14
	Mentor High	2608	14

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Mentor continued	Shore Junior High	1193	18
	Shore Junior High	1193	13
	Shore Junior High	1193	12
	Bellflower Elementary		12
	Fairfax Elementary	841	11
	Hopkins Elementary	471	12
	Madison High	1157	32
	Memorial Middle School, Madison	540	14
	Memorial Middle School, Madison	540	19
	Harvey High School - Painesville	1070	13
	State Street Elementary - Painesville	320	15
	Hale Road - Painesville Twp	400	15
	Wickliffe High	1000	19
	Wickliffe Junior High	1100	13
	Mapledale Elementary	460	9
	Worden Elementary	900	15
	Bryden Elementary - Beachwood	309	11
	Victory Park - South Euclid	367	13
	Victory Park - South Euclid	367	11
	Eastwood Elementary - Warrensville	475	13
	Chagrin Falls Middle	855	12
	Roosevelt School - Euclid	617	12
	Shore Junior High - Euclid	1139	14
	Euclid High	2949	25
	West Junior High - Maple Heights	780	22
	Maple Heights High	1600	18
	Belvoir Elementary, Cleveland Hts.	546	12
	Mayfield High	2000	12
	Mayfield High	2000	11
	Shaker Heights High	1320	14
Toledo	Harvard	722	33
	Sherman	1049	55
	Raymer	1063	53
	Waldbridge	879	26
	Hamilton	1041	36
	Fall-Meyer	391	26
	LaGrange	724	32
	Westfield	553	16
	Whittier	1504	40
	Jones	780	19
	Riverside	825	16
	Start High	2175	14
	Woodward High	2510	20
	Rogers High	2300	13
	Waite High	2075	15
	Nronac Elementary	521	15
	Whitmer	2730	23
	Jefferson Junior High	921	18
	Hiawatha Elementary	546	16
	Lake Elementary	810	13

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Toledo continued	Stranahan Elementary	800	31
	Sylvania High	2600	23
	Jackson Middle	265	17
	McComb Elementary	256	13
	Delta Junior High	300	13
	Otis Elementary	491	37
	Slocomb Elementary	365	14
	Defiance Junior High	1060	19
	Wynn Elementary	375	17
	Clyde High	850	17
	Holland Elementary	725	32
	Maumee High	1425	11
	Antwerp High	532	18
	Central Elementary	832	15
	Napolean Junior High	1100	17
	Kalida Elementary	590	12
	Fallen Timbers	800	13
	Sherwood Elementary	360	13
	Crestview High	366	9
	Hopewell Landon High	486	13
	Tontogany Intermediate	235	12
	North Central Junior High	320	11
	Ottoville Elementary	550	13
	Seneca East High	450	8
	Wayne Trace Elementary	700	17
	Rocky Ridge	213	13
	Ohio City Liberty Elementary	300	12
	Allen Central Elementary	500	14
	Hilltop High	250	13
	Woodmore Intermediate	510	12
	Luckey Elementary	260	17
	Van Lue High	229	14
	Central Junior High	950	38
	Findlay High	2110	20
	Whittier Elementary	719	23
Tuscarawas	Wintersville Elementary	720	12
	Millersburg Elementary	610	[illegible]
	Tuscarawas Elementary	679	15
	John E. Gregg Elementary	728	14
	Pleasant Hill Elementary	472	10
	Nashville Elementary	230	12
	Hills Elementary	469	12
	Brilliant Elementary	431	14
	Lakeville Elementary	175	14
	Bolivar Elementary	470	16
	Baltic Junior High	395	13
	Maysville Junior High	670	20
	West Muskingum High	880	12
	Newcomerstown High	500	16

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Tuscarawas continued	Indian Valley South High	368	10
	Riverview High	985	19
	Granville Middle	400	10
	Watkins High	410	13
	Hartzler Elementary	346	12
	Buffalo Elementary	240	13
	Malvern Elementary	425	15
	Toronto High	675	10
	St. Clairsville Middle	967	16
	Carrollton Junior High	1200	17
	Walnut Creek Elementary	177	12
	Licking View Elementary	260	13
	Tuscarawas Valley High	807	16
	Claymont Junior	643	17

Major Cities	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Cleveland	Miles Standish	875	31
	Miles Park	670	16
	Miles	1000	31
	Doan	525	24
	A. J. Rickoff	875	32
	Wocldridge	270	15
	Woodland Hills	775	15
	Anton Grdina	900	29
	Stanard	380	39
	Sterling	600	18
	William H. Brett	450	15
	Tremont	1125	28
	Parkwood	650	15
	Waverly	625	16
	Orchard	1100	29
	Dunham	800	16
	Clark	500	15
	Captain Roth	1025	18
	H. W. Longfellow	485	31
	J. W. Raper	825	16
	Mount Auburn	570	19
	M. B. Martin	700	16
	Hough	625	16
	Marion	390	28
	J. Burroughs	275	17
	J. F. Landis	775	16
	Beehive	850	18
	Harvey Rice	690	18
	Central	1190	27
	Thomas Jefferson	1360	15
	Glenville Senior High	3150	20
	Nathan Hale	1600	14
	John Hay	1900	17
	Rawlings	1050	15
	John Adams Senior High	2800	33
	L. Diehl Junior High	760	14
	N. Baker	690	15
	Lincoln	1535	32
	John Marshall	2850	13
	Empire	855	29
	South High	1900	15
	Wilson Junior High	765	17
	East	1850	39
	Kennedy	2900	15
	West Junior High	1570	17
	West Tech	1200	18
	Spellacy	1010	34
	Franklin D. Roosevelt	1450	16

	SCHOOL NAME	TOTAL ENROLLMENT	TOTAL DIRECT STUDENT PARTICIPATION
Columbus City	Hubbard Elementary	442	20
	Sullivant Elementary	439	14
	Linden Elementary	1709	16
	Dana Avenue Elementary	601	16
	Weinland Park	487	16
	Felton Elementary	254	12
	East Linden Elementary	547	16
	Siebert Street	444	16
	South Mifflin	741	12
	Eastwood Elementary	219	15
	Starling Junior High	933	16
	Starling Junior High	933	15
	Franklin Junior High	831	17
	Franklin Junior High	831	16
	Everett Junior High	925	19
	Medina Junior High	1141	16
	Champion Junior High	723	18
	North High	1380	15
	North High	1380	20
	Duxberry Elementary	588	28
	Medary Elementary	501	16
	Everett Junior High	925	19
	Champion Junior High	723	13
Dayton City	Ruskin Junior High	758	22
	Steivers High	1244	51
	Jefferson Elementary	864	65
	Jackson Elementary	696	13
	Whittier Middle	707	9
	Van Cleve Elementary	712	11
	Dunbar High	1323	12
	Orrville Wright Middle	932	34
	Cleveland Elementary	1238	21
	Cornell Heights Middle	738	22
	Emerson Elementary	722	13
	Longfellow Middle	946	37
	McFarlane Middle	880	48
	McGuffey Elementary	720	15
	Weaver Elementary	809	11

D. EVALUATION OF ACTIVITIES AND OUTCOMES

D EVALUATION OF THE ACTIVITIES AND OUTCOMES

This part of the narrative includes information from both years of the project. However, many times when data has been tabulated in the "First Year Evaluation, 1971-1972," the reader is referred to that document. The goals and objectives listed below are taken directly from the project proposal for the second year of the project.

Goal #1 Validate a series of measurable behavioral objectives.

Objective 1A Recruit 200 teachers of EMR students across the participating geographical areas for validation of the 14 sets of previously written behavioral objectives during February 1, 1972 - June, 1972.

Objective 1B Recruit 160 teachers of EMR students across the participating geographical areas for validation of the 14 sets of previously written behavioral objectives during September 1, 1972 - January, 1973.

This project has involved, as is indicated in Table I, over a thousand teachers. These teachers represent all geographical areas, (urban, suburban, and rural) in over 50 counties and over 200 school districts. Each of these teachers have a minimum of 10 hours of in-service education plus field testing of the behavioral objectives and as high as 30 hours of in-service education and many, many hours of field testing objectives over this two-year period.

The field test process has been one that we have used to validate the behavioral objectives. The validation procedure has evolved in two basic areas; (1) the anecdotal sheets that teachers were using gave their anecdotal comments about the objectives as to the relevancy, and as to the applicability to the age level of the child. Copies of those field test anecdotal sheets can be found in Appendix A, (2) an accounting of student performance per objective. Student performance has been compiled on a mental age basis as to the general ability level of students passing and failing that objective. Sample copies of the results can be found in Appendix B.

The entire first print out of this field test data is on file at the Mentor Coordinating Center. Sample sizes are relatively small per objective. That is, only a few number of students were given the pre/post field test process for each objective (range 0-90 students). In the year and one-half of field testing, 845 different objectives have been recorded in the areas of reading, writing, and arithmetic. Hundreds of others were field tested for revision information but not recorded for information related to mental age and student ability.

Table II lists the results of pre/post tests of teachers who were involved in the spring and fall sessions indicating significant teacher gain as a result of the pre/post testing of those training sessions. Copies of that test can be found in Appendix A.

TABLE I

PROGRAM MODELS FOR EMR STUDENTS
ESEA TITLE III
TEACHER INVOLVEMENT

Satellite	Spring '71	Fall '71	Sub-Total	Spring '72	Fall '72	Sub-Total	Grand Total '71 - '72
Akron City Schools	28	33	61	41	40	81	142
Ashtabula County Schools	28	33	61	25	28	53	114
Athens County Schools	46	40	86	25	20	45	131
Hamilton County Schools	46	57	103	29	45	74	177
Louisville Local Schools	44	58	102	28	32	60	162
Mentor Exempted Village	28	33	61	41	40	81	142
Toledo City Schools	40	39	79	25	36	61	140
Tuscarawas County Schools	29	29	58	55	74	129	187
TOTAL	289	322	611	269	315	584	1195
Major Cities (three)							
Columbus City Schools				51	16	67	
Cleveland City Schools				26	15	41	
Dayton City Schools				12	15	27	
			Sub-Total	89	46	132	
			Total	358	361	716	1327*

*Total figure includes duplication of those teachers who participated throughout the project.

TABLE II

SUMMARY SHEET PRE POST TESTING
Fall 1972

Models Teachers

Satellite	Part I n	Part I t	Part II n	Part II t
Mentor	8	2.16	8	3.44**
Trumbull	6	1.93	6	.79
Akron	13	2.36*	13	5.09***
Tuscarawas	10	2.61*	10	3.67**
Louisville	11	1.91	11	2.37*
Hamilton	11	1.47	11	3.44*
Dayton	12	.83	12	1.02

* Significant .05
** Significant .01
*** Significant .001

Field Testing Teachers

Satellite	Part I n	Part I t	Part II n	Part II t
Toledo	10	1.12	10	2.39*
Mentor	14	2.27*	14	6.09***
Trumbull	14	9.30***	14	12.57***
Akron	15	2.19*	15	7.55***
Tuscarawas	4	1.56	4	4.07*
Louisville	12	.91	12	4.62***
Hamilton	21	3.48**	21	9.17***

* Significant .05 Level
** Significant .01 Level
*** Significant .001 Level

PRELIMINARY RESULTS OF PRE-POST TESTING
OF
OLD PROJECT TEACHERS AND NEW PROJECT TEACHERS
Spring--1972

Old Project Teachers - Those involved in spring and fall 1971
New Project Teachers - Those beginning in February, 1972
Pre-Test - February, 1972
Post Test - May, 1972

Pre Testing

	New	Old	
Part I of Test	N=59 *33.98	N=130 37.05	t = 2.89 **
Part II of Test	N=49 9.71	N=116 11.91	t = 3.24 **

*mean scores

Teachers who previously had been involved in the project scored significantly higher than those who had not been involved.

A = little or no awareness of behavioral objectives
B = written and used in classroom

	A	B	
Part I of Test	N=36 *33.50	N=92 36.82	t = 2.23 **
Part II of Test	N=76 9.04	N=82 12.08	t = 2.94 **

*mean scores

Teachers who previously had knowledge of behavioral objectives scored significantly higher than those with little awareness.

Major City Teachers - Cleveland

	Pre-Test	Post-Test	
Part I of Test	N=40 *26.68	N=40 34.80	t = 4.51 **
Part II of Test	N=40 5.75	N=40 11.78	t = 6.97 **

*mean score
**signif $p < .05$

Teachers who went through the 10 hour training session including the field testing procedures scored significantly higher on the post-test than the pre-test.

Dr. Edward Meyen, Project Consultant, has indicated both in his summary comments after the first year of the project (see First Year Evaluation, 1971-1972) and in his comments in January, 1973 (see Appendix B) his observations of the success of this objective.

The process used to achieve these objectives has been determined to be very effective. State-wide direction from the Coordinating Center in Mentor and local implementation at each local satellite is a viable way to carry out a project of this scope. The nation-wide validation team report (Appendix C) indicates a very successful achievement of this process.

Goal II Evaluate EMR models in Ohio to provide direction for future programs.

Objective IIA Field test the behavioral objectives instrument on student behavior by June, 1972.

The records of the completion of this objective can be found in the following report on the development of the Ohio Special Achievement Inventory (OSAI).

SECOND-YEAR REPORT
on the
OHIO SPECIAL ACHIEVEMENT
INVENTORY (OSAI)
for
EMR PROGRAM DEVELOPMENT
from
BATTELLE CENTER FOR IMPROVED EDUCATION

January 31, 1973

The Mentor Public Schools awarded Battelle's Columbus Laboratories a contract to provide technical advisory services in the area of computer data processing, and research and development services toward the design of an experimental achievement inventory to assess the relative attainment of behavioral objectives by educable mentally retarded (EMR) students in the different program models of their Title III project, "Program Models for EMR Students".

The project effort was oriented toward two primary tasks:

1) The first stage of the design of an achievement inventory, consisting of items that would be representative of the behavioral objectives generated during the first year of the project, and

2) The design and implementation of a computerized data base for the evaluation of EMR programs.

Under the first task, Battelle-Columbus was responsible for the following work:

1) Planning the content of each level of the achievement inventory,

2) Writing test items for each level, and

3) Designing the first draft of each level of the inventory.

Under the second task, Battelle-Columbus was responsible for two areas of work:

1) The design of a computerized data base, and

2) The development of computer programs required for using the data base.

This report presents a summary of Battelle-Columbus' effort conducted under the first task. A separate report describes the effort directed toward the design and implementation of a computerized data base for the EMR programs evaluation.

OSAI DEVELOPMENT CONTRIBUTORS

Task Leaders

Cliff Audretch, Field Test Administration
Ottolie Mills, Test Production and Second-Year Report
John Powers, Management
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INTRODUCTION

The Ohio Special Achievement Inventory represents a series of objective-based test items. The purpose of the achievement inventory is to serve as an indicator of student progress in achieving the behavioral objectives of the EMR curriculum.

The behavioral objectives were designed to guide the teacher of educable mentally retarded (EMR) students in selecting learning experiences and to aid her/him in evaluating student progress. The 14 categories of objectives were adopted from the 14 persisting life skills outlined in the Cincinnati EMR Curriculum Guide.[1] From the original 15,000 objectives written by teachers, the present draft of 7,000 objectives was developed. The 7,000 objectives represent the 14 curriculum areas and 73 sub-curriculum areas within the curriculum areas. The curriculum areas include the following:

1) Learning to Appreciate, Create and Enjoy Beauty
2) Learning to be a Responsible Citizen
3) Learning to Communicate Through Arithmetic
4) Learning to Communicate Through Reading
5) Learning to Communicate Verbally and in Writing
6) Learning to Earn a Living
7) Learning Homemaking and Family Skills
8) Learning to be Healthy
9) Learning to Live Safely
10) Learning to Manage Money
11) Learning to Travel and Move About
12) Learning to Understand Oneself and Get Along With Others
13) Learning to Understand Physical Environment
14) Learning to Use Leisure Time Wisely

The objectives were written for each of four grade levels: K-3 or Primary, 4-6 or Intermediate, 7-9 or Junior High, 10-12 or Senior High.

---

[1] "Behavioral Objectives for 'Program Models for EMR Students'", A Title III Project directed by Thomas Noffsinger, Mentor Exempted Village Board of Education, 1972.

The objective of Battelle-Columbus Laboratories, having been contracted by Mentor Public Schools, was to design an instrument that would be an indicator of overall student achievement of the behavioral objectives. The inventory should serve as an indicator of a student's achievement in each of the 14 curriculum areas. Since four grade levels of EMR instruction exist, a separate version of the inventory was needed to evaluate each grade level: Primary, Intermediate, Junior High and Senior High. The objectives to be tested in each version of the inventory were selected from objectives at that corresponding grade level. The inventory was designed to indicate general levels of achievement of a student or a class and to assess need in the individual or the class in attaining curricular goals.

This report will summarize the development of the Research Edition, the field test administration, the process of data analysis, and the development of the Fall-72 Version OSAI. Many persons participated in the development of the OSAI, contributing their comments and criticisms so that the test items could, through revision, be improved.

In the development of the Research Edition, the test items were written to represent selected objectives and were rewritten and revised through drafts one, two, and three. These activities and the activities related to the field test administration will be summarized.

The test administrators and coordinators contributed input as a result of their experiences during the field test. This data, along with the analysis of student scores, was the basis for the revisions of the Research Edition. As a result of this input, a fall-72 Version suitable for pre- and post-testing was available by September, 1972.

In an attempt to more clearly present the revision process from item conception to fall-72 OSAI, the revision process is shown throughout the report by using examples of an actual item. The summarization of the total process of revision of that item is shown in Appendix B.

DEVELOPMENT OF RESEARCH EDITION

Administration Method

The test items on the inventory could be administered in several ways: a written test administered to a group of students, a set of questions administered to individual students on a one-to-one basis, or a combination of these. Considering the probability of the limited academic skills among the EMR students, methods other than the traditional paper-pencil test were considered in order to effectively evaluate a student's progress on any given objective.

The student could be stimulated to respond to a given question through the use of an oral or visual stimulus. This could include any number of materials that would be shown to the student or given to him/her so that he/she would be able to manipulate them in response to the question or directions. The mode of student response could be oral, written, or manipulative. In writing test items, the task participants were asked to specify the stimulus and response modes that would most efficiently evaluate the student's achievement of a given objective.

Another factor to be considered in selecting an administration method was time. An individually administered test would require considerably more time for administration than a paper-pencil test administered to an entire group.

In making a decision on the method of test administration, consideration would have to be given to the effectiveness of the method in relation to the administration time involved.

Organization of Content

In order to better categorize the test items, four areas of development were determined. It was the feeling of the project staff that each of the 73 sub-curriculum areas could be classified as one of these types of development: academic, personal, social, or vocational. Each of the sub-curriculum areas was then assigned to one of the four types of development. For instance, in curriculum area 12, Learning to Understand Oneself, sub-area I, physical appearance, would be listed under the personal development area while sub-area IV, school and peer relationships, would be listed under the social development area.

Selection of Content

In order to develop an instrument that was representative of the 7,000 objectives, it was necessary to design a method of sampling that would incorporate objectives from all 14 curriculum areas at each grade level. A sampling procedure was adopted in which a minimum of one objective was selected from each of the 73 sub-curriculum areas at each of the four grade levels. The sampling procedure was not random; objectives were selected on the basis of significance to EMR students. A significant objective was one that the task participants felt 1) was of academic importance for acquiring basic skills, 2) was of importance for personal hygiene, 3) was of social importance in order to function in daily living, and 4) was of value in securing and maintaining a vocation.

Throughout the development process, Mentor's six-digit objective code was retained as a key to the historical data of an item. The six-digit objective code was a unique identifier assigned to the objectives as they were developed. From the objective code, one could determine the curriculum area and the grade level of the objective. The first two digits of the six-digit number represented the curriculum area (01-14), the third digit represented grade level (1-4), and the last three digits represented the sequence number of the objective. For example, objective "042156" was an objective in the 04 curriculum area (area 04 refers to the Reading curriculum) and the second grade level (grade level 2 refers to the Intermediate level). The number 156 is the sequence number. By retaining the six-digit number, it was possible to trace an item back to its original curriculum area and grade level.

Draft One

In following an item from its conception through to its final form as a field test item, much time was spent in reviewing the item to make it a good criterion-referenced item.

From the objectives that were selected to represent all curriculum and sub-curriculum areas, an item was written that would evaluate the achievement of each selected objective. A selected objective was reread and a rough-draft test item written. Any special materials to be used as a stimulus condition were to be specified in the draft item. Each draft item was assigned an ID number. This number had two purposes: to give each item a unique identity and to identify developmental areas. For example, items 101 through 250 would be academic, 251 through 351 would be personal, etc.

An example of an actual item at the rough-draft stage is the following:*

Item #228, Junior High Level -- 042156

In these dictionary pages, place an "X" by each of the words on this list. (Get words unknown to age level)

An information file was set up so that information could be stored on each test item providing a linkage between the items and the objectives. The information stored in this file included the following: the three-digit unique test item ID, the curriculum and sub-curriculum areas, age level (5 = Primary, 9 = Intermediate, 13 = Junior High, and 17 = Senior High), the developmental area (academic, personal, social, vocational), and the modes of stimulus and response. Items could be listed sequentially by ID, by curriculum or sub-curriculum areas, by age level, or by developmental area (see Figure 1).

After assigning each item an ID number, setting up the information file, refining the items to improve wording, and having the items types, they were considered to be in the final form of Draft-one (see Figure 2).

Draft Two

The Draft-one items were then reviewed by two consultants who had knowledge of and a background with exceptional children, one with the Nisonger Center and one as a consultant for several universities in the area of educating exceptional children. They reviewed the items for 1) quality of item, clarity, and wording -- the item must be easily understood by the student; 2) appropriateness to age level -- the skill should be within the capabilities of this age group (mental and chronological age); and 3) redundancy among instruction areas and age levels. Their suggested revisions included assigning an item to a more appropriate level, simplifying or clarifying the wording of an item, and converting objectives or learning experiences to test items. Redundant items and items of little value were eliminated. They were also responsible for assigning 20 items to each developmental area (academic, personal, social, vocational) at each age level, a total of 320 items. The items within a group of 20 were sequenced from most basic skills to advanced skills. The remaining items were placed in an "unassigned" category (59 items) to be field tested and possibly used as substitutes later.

After these consultants had reviewed the items, their comments and revisions were incorporated into the Draft-one items by Battelle. The Draft-two items (320 plus the unassigned) were set up in a new format that included the stimulus condition, the test question, and the response(s) that would be accepted as correct. The stimulus condition could be an oral question or a visual stimulus such as a picture, written material, or other special material** used to provide the condition necessary to administer the question.

The consultants comment on the example, item #228, was to clarify the question. Incorporating their comment, the item in the new format was written as the following:

---

*Item 228 will be used as an example throughout the report to illustrate the revision process. For a summary of the revisions, see Appendix B.

**A special material is an extra device needed to administer the test; this could be something the student would look at, handle, or use in some manner. Examples are a ball, milk cartons, blocks of wood, crayons, etc.

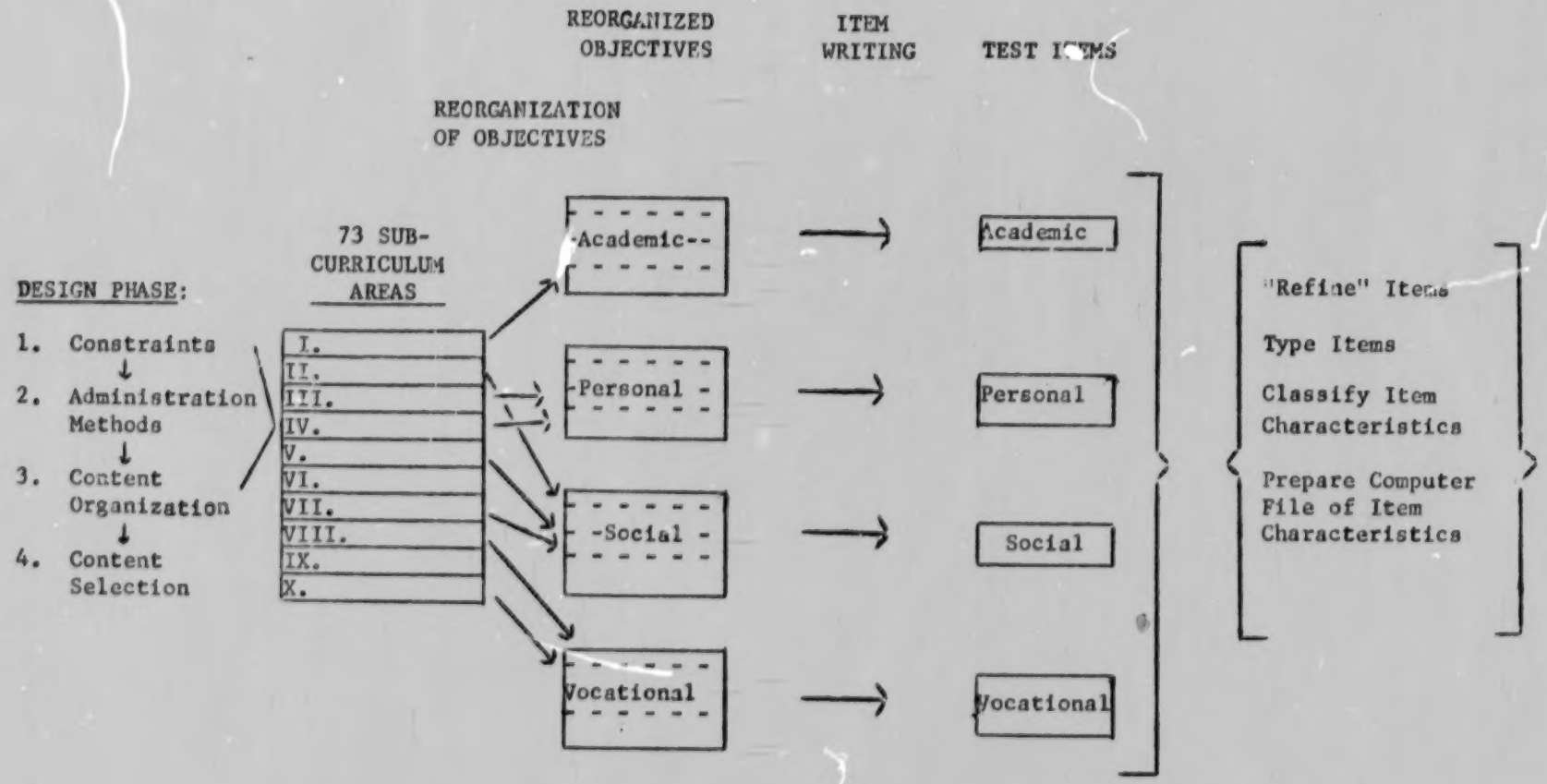
REORGANIZED OBJECTIVES
ITEM WRITING
TEST ITEMS
REORGANIZATION OF OBJECTIVES
DESIGN PHASE:
1. Constraints
2. Administration Methods
3. Content Organization
4. Content Selection
73 SUB-CURRICULUM AREAS
I.
II.
III.
IV.
V.
VI.
VII.
VIII.
IX.
X.
Academic
Personal
Social
Vocational
Academic
Personal
Social
Vocational
"Refine" Items
Type Items
Classify Item Characteristics
Prepare Computer File of Item Characteristics
DRAFT ONE

FIGURE 2

Stimulus: dictionary, word list

Question: Using the dictionary, find and write the definition of the words on this list. (Get words unknown to age level).

Response: ---

For an overview of the Draft-two process, see Figure 3.

Draft Three

Draft-two items were rewritten incorporating the evaluative comments of two satellite coordinators. They were asked to review the items because of their experience teaching and working with EMR's. It was felt they were well qualified to evaluate an item's value to the EMR as well as determining whether the EMR student was capable of accomplishing the objective being tested.

Along with evaluating the stimulus and response modes, for each item the coordinators assigned a method of administration which they felt would be most effective in evaluating the objective considering the reading capabilities of EMR students. The method of administration could be either individual -- on a one-to-one basis, or in a group setting. In order for Battelle to determine the amount of time needed for administering the group and individual items, the coordinators were asked to approximate the maximum number of seconds required for a student to respond to each item.

In looking at the coordinators' comments on the example, item 228, the following evaluative information was provided:

1) question unclear - How many words was the student required to locate?
2) What kind of dictionary would be used?
3) Stimulus would be visual/oral; Response would be written.
4) The item could be administered in a group administration.

Incorporating their suggestions, the item was rewritten as follows:

Stimulus: Webster's Seventh New Collegiate Dictionary-- p. 354-361 containing words given; worksheet; wordlist: gobble, gondola, glacier, goulash.

Question: Using this dictionary, find the words on this list. Write the words and their definitions on the worksheet. Gobble, Gondola, Glacier, Goulash.

Response: Student will correctly record the words and their definitions. Gobble - to swallow or eat greedily; noise of the male turkey; Gondola - long narrow flat bottomed boat used on canals of Venice; Glacier - a large body of ice moving slowly down a slope or across land; Goulash - a beef stew with onion, paprika, and caraway.

For the field test administration the question was changed slightly to read:

Using this dictionary, find the words on this list and tell me their definitions.

The revised Draft-two items were set up into four test versions according to the four age levels (05, 09, 13, and 17). At the suggestion of the two coordinators, the age levels for the four versions were changed to 08, 11, 14, and 17. These ages seemed to represent more realistically the four levels at which EMR students are placed: primary, intermediate, junior high, and senior high. The test versions were determined by the four age levels and the four developmental areas within each age level. Thus, four test versions resulted, Version 08, Version 11, Version 14, and Version 17, with a total of 80 items in each test version, 20 items from each of the four developmental areas. Arrangement of the test items within each test version was by method of instruction, group administered items together and individually administered items together.

Additions were then made to the information file. These included: the method of administration, group or individual; the maximum number of seconds for response; the special testing materials necessary for administration; and the coding for the developmental area of an item. Developmental areas were coded as follows: 1 equals academic, 2 equals personal, 3 equals social, 4 equals vocational. For example, any items classified as 108 would be academic items at the 08 level. Items could now be listed by method of administration, by age level within developmental area, as well as by curriculum areas. A listing of all special materials required for administration could be produced along with the items for which the special materials were needed.

The test items were also reviewed by a professional test developer. He was asked to criticize the test instrument as a whole, assessing the items in terms of overall quality. His suggestions included revisions in wording and format. His primary responsibility was the final sequencing of the items for administration. The criterion for sequencing items within each of the four test versions were 1) developmental area, 2) method of administration, and 3) difficulty of items. For an overview of these activities see Figure 4.

Upon completion of Draft-three, production began. Members of Battelle's staff met to design a usable format for the instrument. It was decided that individually administered items would be printed on individual 8½" x 11" cards which could be folded in the center to allow the teacher to read the question and, at the same time, allow the student to view any visual stimuli printed on the card. The group administered items would be printed in disposable booklets, one booklet per student per test version. There were individual and group administered items at the 11 and 14 levels, level 08 was totally individualized, and level 17 was completely group administered. The decision to administer the items in this manner was made after our discussions with the two satellite coordinators. The general feeling was that EMR's at the 08 level would have difficulty handling a test that required independent reading skills, EMR's at the 11 and 14 levels could handle some items independent of individual supervision, and EMR's at the 17 level possessed reading skills sufficient to complete the test with few problems.

The final step was the actual printing of the individual cards and group booklets. The art materials and visual stimuli were completed to our specifications and the variety of special materials needed for administration were collected.

(Field Test section deleted)

DEVELOPMENT OF FALL-72 VERSION*

Before the revision process was begun, several meetings were held between Battelle staff and Mentor. During these meetings decisions were reached concerning the degree of involvement of the revision process. The immediate objective was to supply Mentor with a revised draft of the OSAI in a format suitable for Fall 72 pre-testing and Spring 73 post-testing. Revision process objectives agreed upon by Mentor and Battelle were as follows:

1) for low-relevance items, to verify their relevance to a current, revised objective;

2) to better equalize the number of items per curriculum area by establishing a minimum of six items for each curriculum area and supplying new items to deficient areas;

3) to base all item revisions on a clearly defined need for revision;

4) to specify "correct" and "partially correct" responses in terms of minimum responses and mode of response;

5) to simplify the individual student's response evaluation sheet; and

6) to provide a means of summarizing each student's scores by curriculum area for the teacher.

Discussions included suggestions for a new format (individual cards in a looseleaf notebook), considerations of administration methods, criteria for item revisions, and a format for the item-by-item revision process.

Method of Administration

A major consideration was the method of administration. A number of negative comments had been made in regard to the group-administered tests. Arguments against the group-administered test attacked the lack of individual attention and the resulting lack of classroom control; the problems encountered by students trying to work at a group pace; and the frustrations of students trying to successfully complete a test that required reading skills they did not possess. The major argument for the group-administered test was the time factor; coordinators felt it just wasn't possible to test each student individually. The assumption that most students had sufficient reading skills to complete the test. A comparison of data on the Version 17-Group test and the Version 17-Individualized test gave no indication that students performed better on a totally individualized instrument; the levels of difficulty appeared to be comparable on the two Version 17 tests (see Appendix A, pp. 5-6). After considering the comments of administrators and coordinators and the data analyses, the decision was made to change the field test administration method slightly. Version 08 would be totally individualized as it was in the field administration and Versions 11, 14 and 17 would be partially individually administered and partially group administered. The emphasis was on simplifying the reading level of all materials, testing reading skills only

*Involved with the field test and analyses activities was the naming by Mentor of the experimental instrument as the "Ohio Special Achievement Inventory" (OSAI). Future references will be made to the OSAI instead of the "test instrument."

when the objective was the achievement of reading, and attaining an administration mode that was both effective and easily administered in a short period of time.

Test Materials

The disposable test booklets would be printed in large type at all levels and administered in a group setting, having the administrator read each item as the test was being taken. Again the test booklets would be color coded to represent the four levels. The individual items would be printed on individual sheets, one item per page, contained in a loose-leaf notebook for convenience in handling. On this sheet would be a list of any special materials needed for administration, the test question, and a detailed response evaluation, indicating correct, partial, and incorrect responses. The art materials and special materials would be in a separate package with the art materials (visual stimuli) in some sort of binder or notebook. All materials would be identified with the associated test item number for ease in locating. An agreement was reached that Battelle would provide 20 sets of materials for the individual administration of items and 2800 sets of disposable materials. The OSAI would remain in four versions, but the versions would be renamed Primary, Intermediate, Junior High, and Senior High.

Revision Process

The procedure to be followed for revisions included first grouping all data on a particular item. This was done by assigning each item a folder to accumulate historical data on the item, such as the curriculum and sub-curriculum areas, item number, and age level; a copy of the test item; scorability rating; coordinators' and administrators' comments; and statistical data such as the response distribution and distribution of response related to mental age. Each item was then considered for inclusion on the basis of representation of curriculum areas, relevance to objective, and quality of item. Items were grouped by curriculum areas, reviewed and revised or sometimes discarded. After existing items had been considered for inclusion, the curriculum areas in which deficiencies existed could be determined. Two coordinators were asked to review the deficient areas and write new items so that a minimum of six items would represent each curriculum area. A prime factor in the revision process, then, was being able to maintain six items in each curriculum area at each level.

The greatest need identified by the test administrators was for more specific "acceptable responses." The idea of giving partial credit for responses to items seemed valid because of the complexity of many items. It would seem of little value to evaluate the students' performance on a yes-no basis---yes, he/she has achieved the objective perfectly, or no, he/she was unable to give a 100% perfect answer. In evaluating the attainment of an objective, it would seem reasonable to score the student on the degree of attainment so that the amount of instruction still needed to achieve the objective might better be perceived. For these reasons, the decision was made to specify "correct" responses, "partial" responses, and in some cases, "unacceptable" responses. For scoring purposes, a partially correct answer would have half the value of a totally correct answer. Responses were identified as clearly and as specifically as possible. Most responses still required teacher judgment, but an attempt was made to specify the actual activity necessary for successful completion of the objective. The minimum requirements for both "correct" and "partial" responses were stated. For the individually administered items, these responses were included on the sheet with the question and special material requirements (Figure 9). For the items in test booklets,

a separate "response evaluation" form was set up so that the administrator could quickly go through the test booklets and evaluate the students' responses (Figure 10).

For a follow-up on test item 228, the field test provided data in the form of comments and response distribution. The most emphasized criticism was that the item required reading skills not possessed by Junior High level students. The words were completely unknown to the students. The suggestion was made that one consider the objective of the item; was the objective for the student to be able to read or to be able to use the dictionary? Another criticism was the difficulty of evaluating the student's response; clearer guidelines were needed for administration and scoring.

The response distribution indicated that 28% of the students responded "incorrectly," 34% responded "partially correctly," and 38% responded "correctly." Considering the administrators' comments, it would seem that too much was required of the student for a "correct" response, that the reading skills required were greater than those of EMR's at the Junior High level, and that the method of administration could be revised for a more valid evaluation.

After analyzing the field test data of item 228, the Fall-72 Version of the test item remained at the Junior High level but several revisions took place. Item 228, as it appears on the OSAI, is as follows:

Materials: dictionary.

Question: Using this dictionary, find the words "carry" and "turkey." Read the definitions for each word to me. (Administrators may spell words for students)

Response Evaluation:

Correct---look up both words in dictionary, locate words, and read one definition for each word;
Partial---locates words, reads at least part of definition.

The two final revision-process objectives dealt with a format for recording the students' test scores. In the field test version, the "Data Recording Form" was rather long and complex making it difficult to use. This was primarily because of the amount of data that was being recorded. A scoring sheet for the pre- and post-test need not be that detailed. The principal purpose of the scoring sheet was to record the scores of an individual on each item and arrive at a total score for the entire test. In fulfilling the objective to provide the teacher with students' scores by curriculum area, the test items were arranged by curriculum area on the scoring sheet as they were on the test. After the completion of each set of items in a curriculum area, a sub-score for that set of items could be tabulated. A total of the sub-scores would provide the student's total score on the test.

The scoring sheet for the OSAI was abbreviated to a one page format. Included on this scoring sheet was information about the student (name, code, class, etc.), date of testing, test administrator's code, and the area for recording the student's responses. In the Intermediate, Junior High, and Senior High levels, the scoring area was divided so that the individual sections and the group sections

MATERIALS

Yardstick, foot ruler.

QUESTION

a) What is this? (yardstick)

What is this? (ruler)

b) How many one-foot rulers does it take to make the length of one yardstick?

RESPONSE EVALUATION

CORRECT

Identifies ruler and yardstick as either ruler and yardstick or foot and yard; indicates 3 feet are in one yard.

PARTIAL

Identifies measuring sticks; does not correctly identify number of feet in a yard, or cannot identify measuring sticks but can identify number of feet in a yard.

UNACCEPTABLE

FIGURE 9

RESPONSE EVALUATION

SEQUENCE #	CORRECT	PARTIAL	UNACCEPTABLE
1	Indicates two concepts relative to ecology: Provides oxygen, adds beauty, provides food for man and animals, useable resource, prevents soil erosion.	Indicates only one correct concept.	
2	Expresses in one word their beauty---relative to color, shape or grace.	None.	Responses such as "smell good," "sound pretty."
3	Writes four lines that represent an original poem (with one major thought) with the last word of the second and fourth line in rhyme.	Writes four seemingly unconnected lines but rhymes the last word of the second and fourth lines.	Writes only two words that rhyme.
4	Indicates any two acceptable forms of the fine arts---use liberal judgment; e.g., painting, drawing, music, dancing, photography, ceramics, macrame, etc.	Indicates only one acceptable art form.	
5	Indicates any 3 different kinds, styles, or forms of music, e.g.: rock & roll, classical, ballad, opera, jazz, pop or popular, folk, march, country western, bluegrass, symphony, religious.	Indicates 2 correct types of music.	Names of instruments, songs, musicians, or dance steps.
6	Indicates concept of recycling or bio-degrading.	None	
7	Indicates two things relative to food, clothing, and shelter.	Indicates only one correctly.	Particular and non-basic items such as TV, record player, etc, or simply "money"
8	Indicates two ways such as, classified (want) ads, employment agencies, word of mouth, job counselors, bulletin boards, radio (news media), parents, friends, school.	Indicates one only correctly.	
9	Bartender-----21 Deliveryman---18	Answers only one correctly.	
10	Circles letter "C".	None.	
11	Circles letters "A" and "D".	Circles one letter only--circles "A" or "D", not "A" and "D"	

FIGURE 10

could conveniently be scored separately. (Figure 11). Since the individual scoring sheets were to be returned to Battelle for analysis and inclusion in the data base, a separate "OSAI Class Profile" sheet was designed to give the classroom teachers immediate feedback on their students. This profile sheet acted as a channel of communication between the administrator and classroom teacher. The administrator was to transfer the sub-scores (scores from each curriculum area) of each student onto the profile sheet. The profile sheet was broken down into the fourteen curriculum areas by individual students with total scores also given. Information was given on the maximum scores possible for each curriculum area of each test version and on the total scores possible for each of the four test versions (Figure 12). This provided the classroom teacher with the information necessary to (1) evaluate each student's performance in each curriculum area, thereby identifying areas in which the student was weak, (2) compare students within the classroom with each other, and (3) score the students' progress by comparing individual scores to the maximum possible.

Fall-72 Version OSAI

Production was completed when test booklets were printed; individual sheets of items assembled in looseleaf notebooks; art materials (visual stimuli) completed and arranged by item; and special materials acquired, labeled, and boxed. The scoring sheets and disposable worksheets to be used by students were bound in pads of 25 for the convenience of the test administrators. Twenty sets of materials for test administration were provided to Mentor. Each set included the following:

- One notebook of individually administered items, one per page, with special materials and response evaluation specified. The items were color coded and grouped by test version. Also included were the response evaluation sheets for group items.

- One set of art materials (visual stimuli) per test version.

- One set of special materials which contained all other equipment not included in the art materials.

A total of 2850 disposable test booklets at the Intermediate, Junior High, and Senior High levels were provided to Mentor. Other materials prepared for Mentor included the disposable worksheets, the OSAI Scoring Sheets (900 per level), and the OSAI Class Profile sheets.

The testing materials were distributed to test administrators at a brief one-day training session held at Battelle in September 1972. Seventeen research assistants had been employed by Mentor for the pre- and post-testing; the pre-testing was to be done in the Fall of 1972 and the post-testing to be done in the Spring of 1973. Coordinators were invited to participate in the session so that they would become more familiar with the materials and administration techniques of the OSAI. The agenda included a brief background of test development and the revision process, scanning the test materials (booklets, individual items, special materials), and a brief review of the test items which incorporated questions and administration techniques.

APPENDIX A:

FIELD TEST DATA ANALYSES

CONCLUSION

The OSAI is currently being administered in the eight satellites as well as the Dayton and Columbus areas. It is anticipated that another revision process will take pace in the Spring of 1973. At that time the data received in the form of students' scores, administrators' evaluative comments, and feedback from the coordinators will be analyzed to determine the extent of the revision process.

Very little qualitative data has been received to date. A few administrators have sent in comments in reference to particular test items. An administration-cost study was done by two administrators. The results were a comparison of total costs of administering the four versions of the test and a breakdown showing time expenditures for various activities, such as scoring, travel, and testing time.

The comments received so far suggest that minor revisions may be required for selected items in the following areas:

- improving clarity
- making items more specific
- evaluating the value of "partial" and "correct" responses.

Other areas of revision may be identified as additional information is received from the test administrators and coordinators.

FIELD TEST DATA ANALYSES

This report summarizes work done in the analysis of data collected during the first field test of the four levels of the OSAI: 08, 11, 14, and 17. Preceding this analysis summary is a brief discussion of issues connected with the question of whether to emphasize criterion or norm referencing in the ongoing revisions of the OSAI.

The OSAI - Criterion and/or Norm Referenced?

Since Ebel* and Glaser** have made the subject visible to most tests and measurement specialists, there has been increased attention given to criterion referenced tests (CRT's), which relate test performance to absolute standards rather than to performance of others.

The arguments for and against CRT's are many. For example, their emphasis on individual proficiency would force instructional staff members to focus on both the process and outcomes rather than process alone. Instructional means would

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* R. L. Ebel, "Content Standard Test Scores," Educational and Psychological Measurement, Spring, 1962, 15-25

**Robert Glaser, "Instructional Technology and the Measurement of Learning Outcomes: Some Questions," American Psychologist, August, 1963, 519-521.

be judged by the ends achieved. The teacher, student, and parent would know better what the student has learned and what can or should be done next. CRT's would appear also to improve student attitudes through increased emphasis on the student's motivation to better himself and not his classmates.

On the other hand, certain disadvantages are often cited. Performance objectives must be stated in behavioral terms - thus, performance in the affective domain would be hard to assess, and objectives involving the retention and transfer of learned skills might be slighted. The two key areas of difficulty, however, appear to be specification of the universe of tasks to be learned and determination of proficiency standards.

Both of these two last mentioned problem areas are quite relevant to the construction of the OSAI. Concerning the first, one must identify a small, manageable number of instructional objectives to be taught and provide several (say, 4-8) test items that will provide a reliable and valid determination of their attainment by the student. One cannot simply define a universe of possible test items and randomly sample from it.* Concerning the second difficulty, the choice of a proficiency standard is quite arbitrary. Whether a student's performance is good enough to allow him to continue instruction in new skills is, in the final analysis, a matter of judgment. It should not be overlooked, however, that these two difficulties hold also for norm referenced tests (NRT's). NRT's must have content validity and the determination of a proficiency standard remains even though it is couched in normative terms, e.g., grade equivalents and percentiles.

In summary, it would appear that the point is not whether to construct a CRT or NRT, but to construct a test which contains the advantages of both: an honest effort to allow the comparison of a student's performance to a standard which is meaningful to the student, teacher, and parent. This challenges one to construct a test whose score, or subscores, is reliable and valid in diagnosing the individual student's strengths and weaknesses and in comparing groups of students.

The major problem facing the effort to construct the OSAI is to carry out analyses of items in order to discover what items are good in both a CRT and NRT sense. In constructing NRT's, one typically finds three quantitative indices for each item being examined: (1) the item's difficulty (percent passed), (2) the item's correlation with some total or subtotal score, and (3) the item's loading on one or more "factors" identified by the mysteriously misused technique known as factor analysis. One also finds total or subtotal scores being assessed for both reliability and validity, quantitative indices always being presented for reliability and often for validity (the validity of an achievement test is usually a matter of expert judgment - this is not to preclude, however, studying the relationships among achievement measures of the same subject).

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*Jane Loevinger, "Person and Population as Psychometric Concepts," Psychological Review, March 1965, 143-155.

A major issue has been made by some to find or invent parallel, quantitative indices of an item's "worth" for CRT tests.* It is interesting that several of these attempts have led to very high relationships between an item's worth a la CRT methods and the traditional NRT methods. This is not surprising in view of the fact that extremely difficult or easy items on a CRT test administered in a way and at a time unrelated to the use of the underlying instructional objectives should be considered suspect (at least in terms of the level of difficulty of the whole test). Similarly, the content validity of CRT items should be quite high and, if grouped into content meaningful subtests, they should correlate well with each other and their sum - thus assuring high internal consistency reliability. Also, any factor analysis done with due care to the use of the appropriate analytic model should yield high loadings on common factors for items testing the same objective or level of objective.

Employing the above reasoning, the preliminary analysis of the OSAI items for each of four levels (08, 11, 14, and 17) was carried out in the following manner:

- All data processed for each item was checked (looking for errors in scoring; keypunching, and the extent of missing data).
- Response distributions for each item were examined (the scoring system used for this first field administration was 1=incorrect, 2=partially correct, 3=correct).
- Factor analyses, using several common models, where contemplated, but were not carried out due to the small number of examinees relative to the number of items and the relatively low benefits anticipated for high costs.
- Item-total correlations were calculated between each item and the total score in (1) the curriculum area to which the item belonged, and (2) the core area to which it belonged.

Several other analyses were performed to gain additional insight into the validity of the items and two curriculum areas: reading and arithmetic.

- Response distribution by mental age (in years) were examined for each item.
- The distributions of mental age and chronological age for the examinees taking each level were compared.
- The reading and arithmetic curriculum area subscores on the OSAI were correlated with the Reading and Mathematics scores of the Metropolitan Achievement Tests (MAT).

*See, for example, Hsu, Tse-Chi, "Empirical Data on Criterion-Referenced Tests," paper presented at the Annual Meeting of the American Educational Research Association, New York, February, 1971; W. J. Popham and T. R. Husek, "Implications of Criterion-Referenced Measurement," Journal of Educational Measurement, Spring, 1969, 1-9; and R. C. Cox and J. S. Vargas, "A Comparison of Item Selection Techniques for Norm-Referenced and Criterion-Referenced Tests," Report No. BR-5-0253, Learning Research and Development Center, Pittsburgh University, February, 1966.

Results of Item and Validation Analyses

The checks of all processed data were done and few errors were discovered and corrected. Almost all errors were keypunching errors - a tribute to the care and capability of the field test administrators.

The response distributions for each level were examined. (A copy of the computer printout displaying these distributions for each level is contained in Reference A.) Concerning Level 08, the items appear to have been relatively easy overall. Thirty-two of the 86 items (or 37%) were passed by at least 80 percent of the examinees. Only four (or 5%) were passed by less than 20 percent of the examinees. Of additional interest, especially with respect to item revision, were the number of items scored partially correct. Items scored this way were sufficiently multi-faceted or ambiguous that the test administrators felt that the examinee did not fail the item but nor did he pass it. There were 20 (or 23%) such items for which at least 20 percent of the examinees were scored "partially correct." In summary, 60 percent of the items on Level 08 were at least partially correct for all examinees.

On Level 14*, 10 (or 12%) of the 96 items were passed by at least 80 percent of the examinees. Sixteen (or 17%) were passed by less than 20 percent. And 45 (or 47%) were scored partially correct. Therefore, 59% of the items on Level 14 were at least partially correct for all examinees.

On Level 17*, only two (or 2%) of the 94 items on Level 17 were passed by at least 80 percent of the examinees. Twenty (or 21%) were passed by less than 20 percent. And 45 (or 48%) were scored partially correct. Thus 50 percent of the items on Level 17 were at least partially correct for all examinees.

In summary, ignoring partially correct responses, the difficulty of the OSAI appears to increase with age level - the 08 level being the easiest and the 17 level the hardest. Including partially correct responses, Level 11 appears to be the easiest. Unfortunately, the nature of the partially correct response is ambiguous.

Probably the most defensible explanation of this increase in difficulty with age level is that the gap between mean mental and chronological ages of the examinees tested increases as the level of the OSAI goes up. The difference between the two means for Level 08 examinees was CA-MA = 9.0 - 6.2 = 2.8. For Level 11 examinees it was 12.2 - 8.7 = 3.5. For Level 14 it was 14.5 - 10.3 = 4.2; and for Level 17 it was 17.0 - 11.7 = 5.3. That there is indeed a relationship between mental age and item response is supported by the cross tabulations of mental age and type of response presented for all items for each level of the OSAI in Reference B. For the great majority of the items, the item becomes easier with increasing mental age.

The hypothesis that switching from individual to group administration as the OSAI's age level increases explains the increasing difficulty does not appear to be a strong candidate in that the revised version of Level 17 was individually

*The revised versions of Levels 14 and 17 are not discussed here. There appeared to be no systematic difference in their response distributions from the original versions.

administered and the level of difficulty did not appear to go down overall. Also, the suggestion that the higher levels require more reading skills is not supported well for two reasons. First, the group administered items were read out loud as well as being presented visually in booklets. Second, the correlations between the OSAI total score and the MAT Reading score (see Table 1) is not consistently high at either the 08 or 17 levels. At all levels, the OSAI total score correlates with the MAT reading score noticeably more than it does with the MAT Mathematics score in only one case - for those students who took Level 2 of the MAT. In all other cases except one, its correlation with MAT Reading was less than with MAT mathematics. Therefore, the OSAI cannot be said, on the basis of this evidence, to be predominantly a reading test - even at the higher age levels.

One should also note in Table 1 that the OSAI Arithmetic curriculum area subscore always correlates substantially with the MAT Mathematics score. The correlations between these two instruments in reading, however, are substantially high (greater than 0.400) only for the 11 and 14 Levels of the OSAI. The two low correlations between the two reading scores at the OSAI Level 17 can be partially explained by the fact that the OSAI Reading score is based on only one item. That it would correlate in the 0.300's with the MAT Reading score is remarkable! The low reading correlation at the OSAI Level 08 may be due more to the total lack of relationship between the Level 1 MAT Reading score and the total OSAI - all three of these correlations are virtually zero.

Finally, for a look at all item-total correlations within the OSAI, for each core area (Academic, Personal, Social, and Vocational) and each curriculum area (numbered C01-C14 in correspondence with the original numbering of curriculum areas), the reader is referred to Reference C. In most cases, these correlations are substantially positive. The exceptions will be noted in the revision of the four levels of the OSAI.

THESE PAGES WERE [redacted] MISSING FROM THE DOCUMENT THAT WAS SUBMITTED TO ERIC DOCUMENT REPRODUCTION SERVICE.

PP. 43, 44, 45

Materials Released to Tom Noffsinger; October 3, 1972

References	Description
A.	Computer printout of response distributions for each item on each level of the OSAI (Prepared August, 1972)
B.	Computer printout of response distributions by mental age for each item on each level of the OSAI (Prepared August, 1972)
C.	Computer printout of the item-total correlations for each core and curriculum area on each level of the OSAI (Prepared August, 1972)

APPENDIX B:

REVISIONS OF TEST ITEM 228

REVISIONS OF ITEM 228

An example of an actual item at the rough-draft stage is the following:

Item #228, Junior High Level---042156

In these dictionary pages, place an X by each of the words on this list. (Get words unknown to age level)

The Consultants' Revisions

The consultants' comment on the example, item #228, was to clarify the question. Incorporating their comment, the item in the new format was written as the following:

Stimulus: dictionary, word list

Question: Using the dictionary, find and write the definition of the words on this list. (Get words unknown to age level.)

Response: ---

The Coordinators' Revisions

In looking at the coordinators' comments on the example, item 228, the following evaluative information was provided:

(1) question unclear - How many words was the student required to locate?

(2) What kind of dictionary would be used?

(3) Stimulus would be visual/oral; Response would be written.

(4) The item could be administered in a group administration.

Incorporating their suggestions, the item was rewritten as follows:

Stimulus: Webster's Seventh New Collegiate Dictionary---pp. 354-361 containing words given; worksheet; wordlist: gobble, gondola, glacier, goulash.

Question: Using this dictionary, find the words on this list. Write the words and their definitions on the worksheet. Gobble, Gondola, Clacier, Goulash

Response: Student will correctly record the words and their definitions. Gobble---to swallow or eat greedily; noise of the male turkey: Gondola---long narrow flat bottomed boat used on canals of Venice; Glacier---a large body of ice moving slowly down a slope or across land; goulash---a beef stew with onion, paprika, and caraway.

For the field test administration the question was changed slightly to read:

Using this dictionary, find the words on this list and tell me their definitions.

Results of the Field Test

For a follow-up on test item 228, the field test provided data in the form of comments and response distribution. The most emphasized criticism was that the item required reading skills not possessed by Junior High level students. The words were completely unknown to the students. The suggestion was made that one consider the objective of the item; was the objective for the student to be able to read or to be able to use the dictionary? Another criticism was the difficulty of evaluating the student's response; clearer guidelines were needed for administration and scoring.

The response distribution indicated that 28% of the students responded "incorrectly," 34% responded "partially correctly," and 38% responded "correctly." Considering the administrators' comments, it would seem that too much was required of the student for a "correct" response, that the reading skills required were greater than those of EMR's at the Junior High level, and that the method of administration could be revised for a more valid evaluation.

OSAI Version -- Item 228

After analyzing the field test data of item 228, the fall-72 Version of the test item remained at the Junior High Level but several revisions took place. Item 228, as it appears on the OSAI, is as follows:

Materials: dictionary

Question: Using this dictionary, find the words "carry" and "turkey." Read the definitions for each word to me. (Administrators may spell words for students.)

Response Evaluation:
Correct -- look up both words in dictionary, locate words, and read one definition for each word; Partial -- locates words, reads at least part of definition.

Objective IIB Field test the evaluation design by August, 1972.

The record of the completion of this objective can be found in the following report on the Data Base System for EMR Program Development.

SECOND-YEAR REPORT
on a
DATA BASE SYSTEM
for
EMR PROGRAM DEVELOPMENT
from
BATTELLE CENTER FOR IMPROVED EDUCATION

January 31, 1973

The Mentor Public Schools awarded Battelle's Columbus Laboratories a contract to provide technical advisory services in the area of computer data processing, and research and development services toward the design of an experimental achievement inventory to assess the relative attainment of behavioral objectives by educable mentally retarded (EMR) students in the different program models of their Title III project, "EMR Program Models Development".

The project effort was oriented toward two primary tasks:

1) The first atage of the design of an achievement inventory, consisting of items that would be representative of the behavioral objectives generated during the first year of the project, and

2) The design and implementation of a computerized data base for the evaluation of EMR programs.

Under the first task, Battelle-Columbus was responsible for the following work:

1) Planning the content of each level of the achievement inventory,

2) Writing test items for each level, and

3) Designing the first draft of each level of the inventory.

Under this second task, Battelle-Columbus was responsible for two areas of work:

1) The design of a computerized data base, and

2) The development of computer programs required for using the data base.

This report presents a summary of Battelle-Columbus' effort conducted under the second task. A separate report describes the effort directed toward the development of the EMR achievement inventory.

The objectives of the data base system are to provide an efficient means of storing data during the project and to facilitate the retrieval of data for a variety of applications. In describing how the current data base system meets these objectives, this report will first focus on the data base organization, then on data storage and retrieval, and finally on each of the principal data files in the system. Also included with this report is an Appendix containing examples of the data-collection forms and instructions on forms control.

Data Base Organization

For the evaluation of EMR Program Models, the analysis will deal with approximately 2,000 students in 200 classrooms distributed over the State.

In addition, the analysis will include data collected continuously over a three-year period. As a result, the data base organization must facilitate the integration of data from a large variety of sources over a long period of time. The basic objects of analysis in the evaluation are the students, teachers, and classrooms. Similarly, the sources for the data to be analyzed are the students, teachers, and classrooms. It is the objective of the data base organization to link the sources and objects of analysis in a systematic fashion. If one were only dealing with an isolated classroom and collecting data on student performance in that classroom and analyzing it, then the design of a data base would be superfluous. However, when there are almost 200 classrooms which are operating independently, but must be evaluated on a common basis, the need for a data base design is imperative. It is the purpose of this document to describe the data base design for this evaluation.

Figure 1 shows the eight basic types of files in the data base design. These files include class descriptions, financial data, class enrollment lists, teacher descriptions, student performance data collected at different points in time, student descriptions, OSAI item performance data, and data from the behavioral objectives field test. Each of these files is described in more detail in Table 1 and later in this report. The remainder of this section and the next will deal with the interrelationships of the files and the processes by which data is stored onto and retrieved from the files.

Several characteristics affect how the files in the data base are interrelated. These include 1) the volume of data to be stored, 2) the frequency of adding new data ("updating"), 3) the amount of data processed at one time, 4) the timeliness required in reporting any changes in the data base, and 5) the level of detail of the data to be stored. Based on the experience gained in the first two years of this project, the following values apply:

1) volume is estimated to reach a maximum of 4.32 million characters,

2) the frequency of updating is twice a month,

3) the amount of data processed in a single update is less than 500 records,

4) the frequency of reporting is once a month, and

5) the level of detail of the data is very specific, little summary data is stored.

These general characteristics are further summarized for each file in Table 1.

Data Storage and Retrieval

The placement of data into the data base involves six data-collection forms. Each of three forms correspond to a particular data file while the remaining three forms affect several files simultaneously.

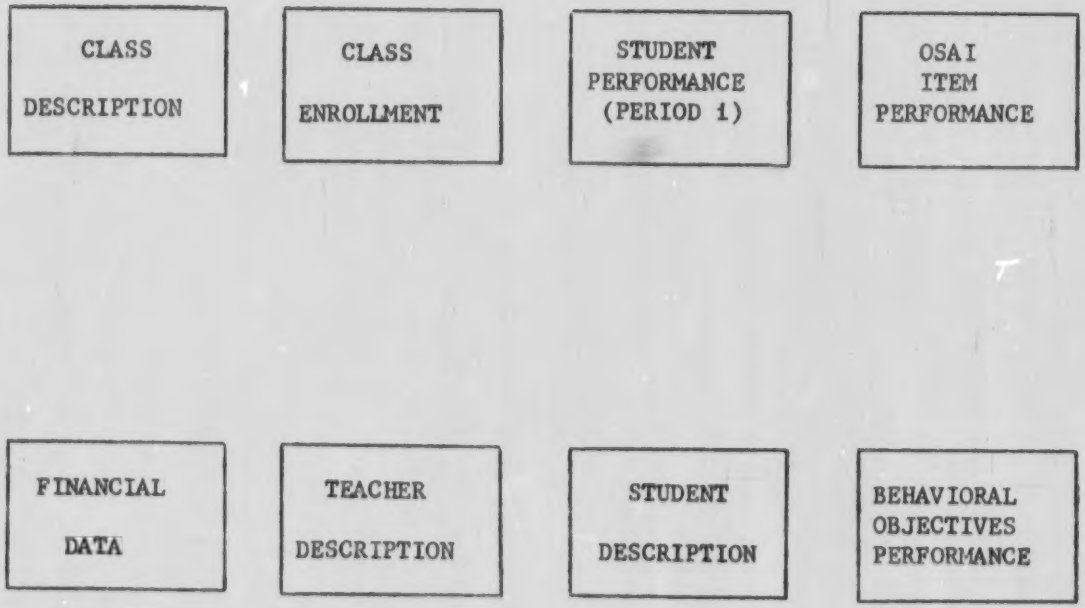

FIGURE 1. FILES IN THE MENTOR DATA BASE

TABLE 1. FILE CHARACTERISTICS

File Name	Organizational Unit	Maximum Record Size (in char.)	Maximum Number of Records	Frequency of Updating	Frequency of Reporting
Class Description	Class	410	200	Bi-Weekly	Monthly
Financial Data	Class	150	200	Semi-Annually	Aperiodic
Class Enrollment	Class	1530	200	Bi-Weekly	Monthly
Teacher Description	Teacher	120	200	Bi-Weekly	Monthly
Student Performance	Student	130	2000	Bi-Weekly	Monthly
Student Description	Student	110	2000	Weekly	Immediate
OSAI Item Performance	Student	150	2000	Semi-Annually	Aperiodic
Behavioral Objectives Field Test	Objective	100	1500	Semi-Annually	Aperiodic

The three specific forms are the financial data-collection form, the OSAI scoring sheet, and the objective field test form ("Form 2"). These forms update the Financial Data File, the OSAI Item Performance File, and the Behavioral Objectives File, respectively.

The remaining three data forms are the class and teacher description form ("Form 4"), the student description form ("Form 1A"), and the student performance form ("Form 1B"). These forms add new classes, add new teachers, update enrollment lists, update student descriptions, and add new student performance data. The class and teacher description form, for example, adds a new teacher to the teacher description file, and assign a series of student codes for the class in the student description file. Examples of the forms and the instructions for their use are given in the Appendix.

Figure 2 shows the placement of data into the data base in terms of the files and data collection forms. A unique feature of the system is the computer printing of forms 1A and 1B, the student description and performance data forms. In this process, Form 4, the class and teacher description form, initiates the assignment of student codes for a particular class. Once the codes are assigned, a blank Form 1A (Student Description) is printed by the computer for the new class. The names of the students in the new class are filled in by the teacher at the class site and the completed Form 1A is entered into the data base. This entry of Form 1A completes the student descriptions for the new class and a Form 1B (Student Performance) is printed by the computer. This Form 1B is returned to the class site for entry of performance data. At the same time, a review copy of the completed Form 1A is printed by the computer for the teacher's records. This review copy also permits validation of the data stored in the files. Meanwhile, when the Form 1B (Student Performance) is completed and returned to Battelle, the data is entered into the data base and a review copy is prepared. The review copies of Forms 1A and 1B not only permit validation of the data but also can be used to add make-up data and indicate changes in classroom enrollment. The process of filling-in Form 1A and 1B, reviewing, and changing as required continues in an iterative fashion throughout the project. In the meantime, data is also being collected on the costs for each class, on OSAI item performance, and on Behavioral Objectives performance.

The retrieval of data from the data base will take many forms. One form of retrieval is the selection of data given the identification of the class, teacher, or student. This form requires only that one specify the desired class, teacher, or student identification code. The principal reason that one may do this directly is to verify that a particular class, teacher, or student was in the data base. Once the particular item is retrieved, the data for that particular class, teacher, or student can be inspected and changed if desired. A second form of retrieval is the selection of data given the characteristics of the data. In this form, the values of data elements determine which classes, teachers, and students are retrieved. For example, data on student performance may be retrieved for those students in model types 1 and 5 for rural and urban geographical settings. This 4-way comparison can then be made on student performance data collected in model types 1 and 5 for rural and urban geographical settings.

Figure 3 shows the various ways in which data retrieval can occur. To the evaluator, retrieval can be based on the following parameters:

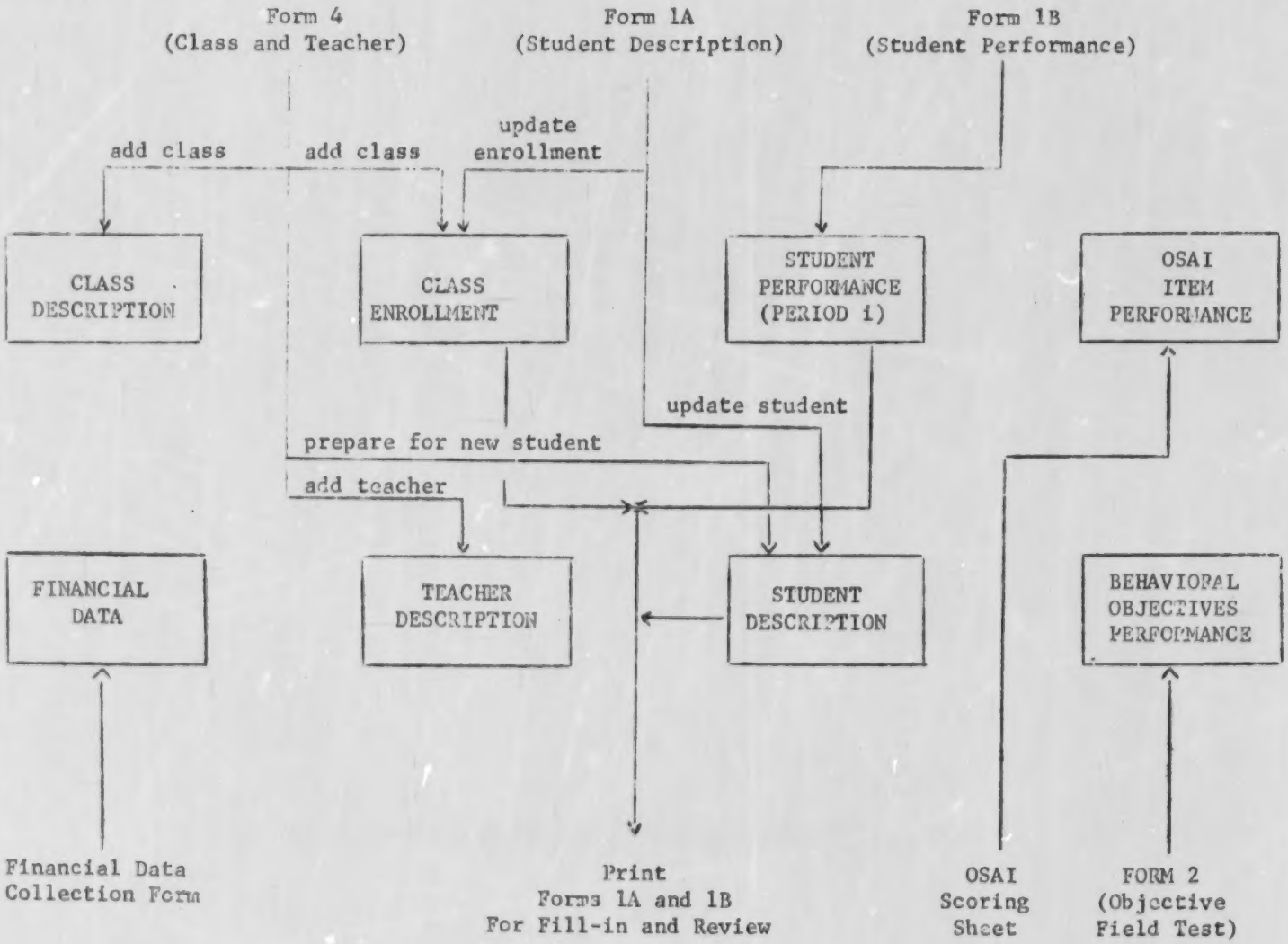

FIGURE 2. PLACEMENT OF DATA INTO THE DATA BASE

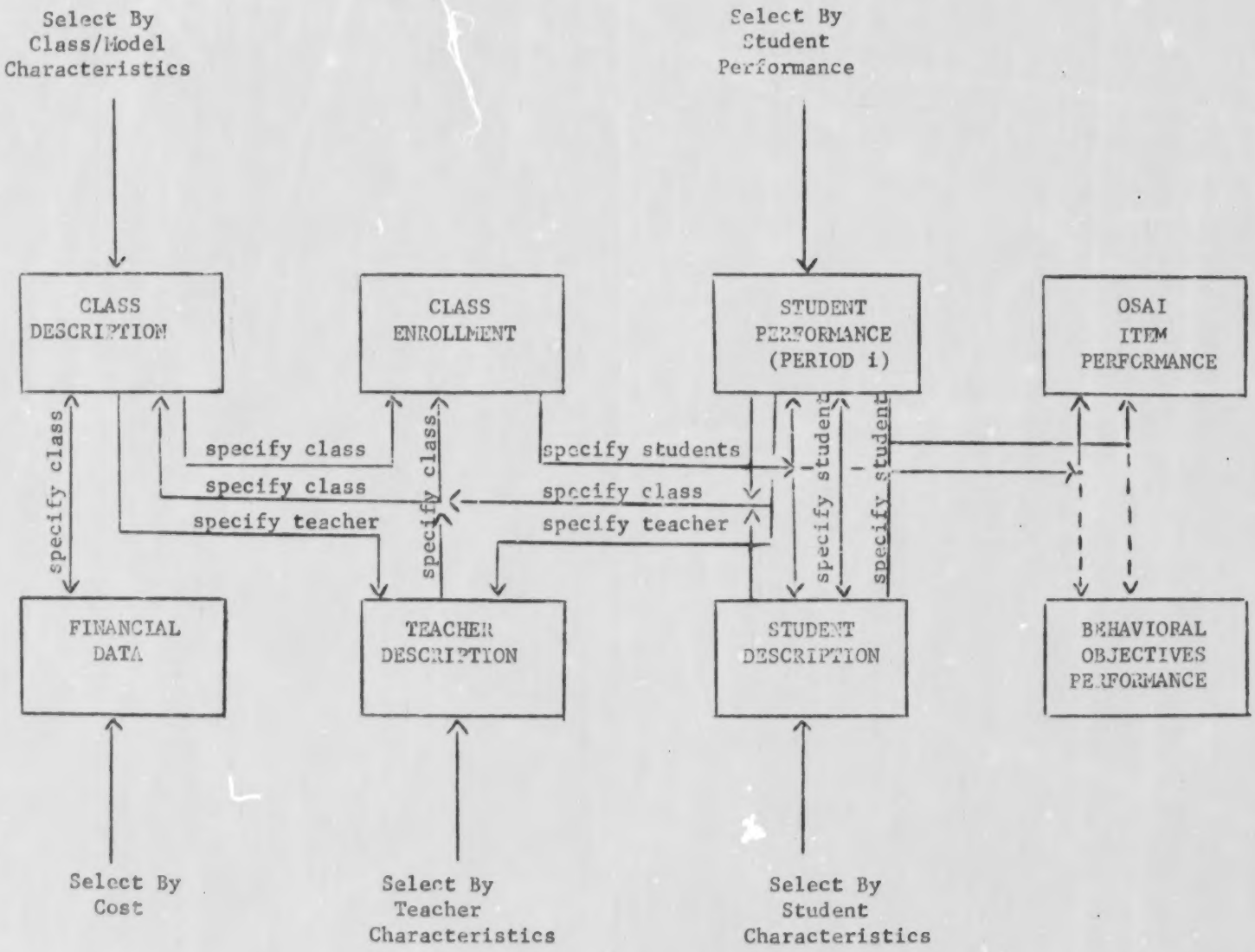

FIGURE 3. DATA RETRIEVAL

1. Identification Codes
    a. Class
    b. Teacher
    c. Student
2. Data Characteristics
    a. Model
    b. Class
    c. Costs
    d. Teacher
    e. Student Performance
    f. Student Description

As shown in Figure 3, when retrieval is based on characteristics of the data, the files themselves provide the identification codes which link classes, teachers, and students. For example, if one wishes to retrieve student and teacher data for model types 1 and 5, the following process would occur: 1) the Class Description File would be searched for model types 1 and 5, 2) the class identification codes for model types 1 and 5 would be to retrieve student identification codes from the Class Enrollment File, 3) the student identification codes would then be used to retrieve student performance data for the time period of interest, and 4) teacher identification codes from the Class Description File would be used to retrieve data from the Teacher Description File. An alternative process would require the searching of the Student Performance File for students in model types 1 and 5. Included in these student records would be the teacher identification codes. The decision to use one of the two alternative processes described above or any other alternative for an evaluation retrieval would depend on the size of the various files, the completeness of the data, and similar factors.

Class Description File

The purpose of this file is to record non-varying information about each class in the program evaluation. This is stable information which applies to the class independently of class enrollment. Information from this file can be used to report on the status of the project in terms of model types, locations, and teacher.

This file also contains the historical record of all teachers who were associated with each class. A list is maintained for each class indicating the Code, Entry Date, and Exit Date for each teacher who had taught that class during the program evaluation. This record provides the linkage for associating each class of students with the appropriate teacher at a given point in time.

The Class Description File is organized by class and each record contains the following principal elements:

1. Class Code (Access Key)
2. Date of Entry into Project
3. Date of Exit from Project
4. Date of Last Recording of Information on this Class
5. Location Codes
    a. Satellite
    b. District
    c. School Building
    d. County

6. Model Information
   a. Model Name
   b. Model Code
7. Geographic Setting
8. Cumulative List of Teacher Codes with Entry and Exit Dates

The codes used for county, school district, and school building are identical with the identification codes used by the State Department of Education. This insures compatability with the existing State information system for the possible purpose of utilizing other district and school data which is collected by the State. All other codes are unique to this data base.

Financial Data File

The purpose of this file is to accumulate cost information by school for evaluating program models. This file is currently under development.

The Financial Data File will be organized by model/class and will contain the following principal elements:

1. Identification
   a. Class Code
   b. Date Prepared
   c. Geographic Setting
   d. School Building Code
   e. District Code
2. General Information
   a. ADM of all students in district
   b. ADM of EMR students in district
   c. ADM of all students in EMR classroom
   d. ADM of EMR students in EMR classroom
   e. Total classrooms in district
   f. EMR classrooms in district
   g. Total classrooms in building
   h. EMR classrooms in building
3. Financial Summary
   a. Administration
   b. Staff Support
   c. Supervisor of Instruction
   d. Direct Instruction
   e. Auxiliary Services
   f. Operations and Maintenance
   g. Total Model Expenditures
   h. ADM of EMR Students
   i. Average cost per EMR student

Class Enrollment File

The purpose of this file is to maintain a dynamic record of current and past class enrollment. This file records the codes of all students who were enrolled in each class. Each student code is identified with the dates of entry into and exit from the class. For each class the list of student codes is always cumulative with current students identified as having no exit date.

Using the dated, cumulative list of students for each class, class enrollments can be recreated for any point in the history of data collection.

The Class Enrollment File is organized by class and contains the following principal elements:

1. Class Code (Access Key)
2. Cumulative Number of Students in Class
3. Cumulative List of Student Codes with Entry and Exit Dates

Teacher Description File

The purpose of this file is to record information describing the teacher which will be of value in performing the program evaluation. This file contains information which not only identifies the teacher, such as name, but also contains information pertinent to the analysis of programs. Examples include teacher experience and education.

The Teacher Description File is organized by teacher and contains the following principal elements:

1. Teacher Code (Access Key)
2. Current Class Code
3. Current Model Code
4. Date of Entry into Project
5. Date of Exit from Project
6. Date of Last Recording of Information on this Teacher
7. Name
8. Sex
9. Date of Birth
10. Experience
    a. Present Model
    b. Total EMR Teaching Experience
    c. Other Teaching Experience
11. Education
    a. Degree Level
    b. Area of Major
    c. Area of Minor

Student Performance File

The purpose of this file is to record the performance measures which are collected for each student. Many different copies of this File will exist, one copy for each data-collection period. It is this file which will be used as the principal source of information for describing the effects of different models on student performance.

The information recorded in this file is expected to vary over several data collection periods. For each period, a new copy of the Student Performance File will be created, recording only the performance data collected during that period. The first period is fall-winter of 1972 and the second period is spring-summer of 1973. Additional recording periods will be based on the availability of new data and the amount of time required to record performance data on a large number of students. Ideally, one would like to specify a narrow time span in which identical measures were collected on all students. However, because of the large numbers of students in widely scattered classrooms, this ideal is not possible. Instead, general periods of data collection are used and performance data is accumulated by period. On the average, a large proportion of the students will have been measured for each and every data collection period.

Thus, there is a definite functional relationship between the number of periods, the length of each period, the total number of students tested for a given period, and the number of students who were tested in each and every period. For this data base, the decisions regarding the collection periods can be made independently of any data base requirements. In other words, there are no constraints imposed by the data base design on the number of periods, the time between periods, or how many students would be included in any one period.

Once several Student Performance Files have been created for different performance periods, the data can be analyzed in several ways. Each file can be analyzed independently, describing student performance by program model, for example. Two or more files, each representing a different period, can be aggregated separately and compared. Finally, two or more files can be merged to sort out within-student, between-period factors.

The Student Performance File is organized by student and each record contains the following principal elements:

1. Identification by student code (access key)
2. IQ Test
   a. Performance Sub-Test Score
   b. Verbal Sub-Test Score
   c. Full-Scale Score
   d. Test Identification Code
   e. Date of Test
3. Achievement Test Data
   a. Reading Standard Score
   b. Mathematics Standard Score
   c. Level
   d. Date of Test
4. OSAI Data
   a. Level
   b. Raw Scores for 14 Curriculum Areas
   c. Date of Test
5. Collection Period Information
   a. Class Code
   b. Model Code
   c. Teacher Code(s)

Student Description File

The purpose of this file is to record characteristics of each student which are not expected to change from one performance period to the next. This is fairly stable information which can be used to describe each student in the system, to set various independent variables for analysis, and to assist in locating students if only limited information is available about them.

Since there any many performance periods, it would be wasteful to reproduce the non-varying information from period-to-period. It is the purpose of the Student Description File to record the non-varying information in one place. By eliminating redundancy, the process of changing portions of an existing student description is greatly simplified. It is sometimes the case, for example, that family names are changed and making this change in a centralized student description record is much simpler than changing all the records associated with that student.

Since much of the information in the Student Description File is descriptive of the characteristics of the student, this same information can be used to stratify students for performance analysis. For example, a sweep through the Student Description File can separate students based on their entry date into the EMR program. The codes for these students could then be used to select the appropriate performance records for analysis. Even the numbers of students selected prior to analysis has informative value to the analyst. This kind of information could be especially important in trying to achieve balanced groups when selecting students for testing, for example.

The Student Description File can also be used to prepare alphabetized lists of all students in the program. This greatly simplifies searching for students whose code is missing or name is incomplete. This file is State-wide and independent of the student's satellite location.

The Student Description File is organized by student and each record contains the following principal elements:

1. Student Code (Access Key)
2. Class Code
3. Model Identification Code
4. Date of Student Entry into the Program
5. Date of Student Exit from the Program
6. Student Name
7. Nickname
8. Sex
9. Race
10. Date of Birth
11. Date of Student Entry into Special Education Classes

OSAI Item Performance File

The purpose of this file is to accumulate student performance on the OSAI by test item. The resultant data will be used to compute curriculum-area scores for insertion into the Student Performance file and to perform item analysis of the OSAI.

The OSAI Item Performance File is organized by student and contains the following principal elements:

1. Student Code
2. Date of Test
3. Test Level
4. Student Name
5. Student Nickname
6. Class Code
7. Test Administrator Code
8. Responses for Each Test Item

Behavioral Objectives Performance File

The purpose of this file is to accumulate student performance data on the behavioral objectives. This file is maintained in connection with the field testing of the objectives and is independent of the general data base system. Its application is in the analysis of three general research questions as follows: 1) What objectives are being used in the field testing? 2) What is the relationship between the teacher prediction of student performance on the objective, the pretesting of the objective, and the post testing of the objective following instruction?

3) What is the relationship between student performance on each objective and student mental age?

Because of the large number of objectives in field testing, only performance on objectives in the areas of Reading, Writing, and Arithmetic are being accumulated in the file. The file is organized by student and objective within class and contains the following principal elements:

1. Classroom Code (if applicable)
2. Teacher Code (if applicable)
3. Number of Students
4. Student Code (if applicable)
5. Date of Birth
6. Date of IQ Test
7. IQ Score
8. Objective Code
9. Content Outline Identification (where applicable)
10. Grade Level
11. Date of Pre-test on Objective
12. Prediction, Pre-test, Post test scores for Each Student on the Objective

APPENDIX

DATA-COLLECTION FORMS
and
INSTRUCTIONS

1. Forms Control Instructions
2. Form 4 (Class and Teacher)
3. Form 1A blank
4. Form 1A review
5. Form 1B blank
6. Financial Data
7. OSAI Scoring Sheet (4 levels)
8. Form 2 (Behavioral Objective Field Test)

FORMS CONTROL FOR THE MENTOR TITLE III PROJECT

Instructions

Follow the initial sequence given below, steps 1 through 6, to set up each class in your satellite area. In the fall of 1972, all of your classes can be processed as a group. After the fall of 1972, each class should be processed as soon as it enters the program evaluation. Steps 1 through 6 require only one form for each class and only one form for each teacher. To simplify forms handling, the class and teacher forms are on the same sheet of paper. If there is more than one teacher for a given class, use additional teacher description forms and describe the class completely on these additional forms.

As new classes and teachers enter the program evaluation, follow the six steps in the initial sequence given below. If a teacher or class exits from the program evaluation, send a note to Battelle indicating 1) the class and teacher codes that Battelle assigned, 2) the district, building, and teacher names, 3) the exit date, and 4) the reason for exiting. Cases of mass student transfers, major changes in model designation, and other unusual, though possible, changes can be processed with the data base system. Please contact Battelle directly for the procedures required in these cases.

Steps 6 and 7 constitute an iterative updating sequence for each classroom in your satellite. This sequence has several major advantages over alternative approaches:

a. Each data element (name, score, etc) is entered only once and Battelle returns a new copy with the updated information.

b. Changes in any data element can be accomplished at any time by crossing out the old value, entering the new value, and sending the form to Battelle.

c. Incomplete data can be completed at any time and sent to Battelle, allowing for entering the results of makeup testing.

d. It is not necessary for you to retain any historical or archival information; you will always have the most up-to-date copy of all accumulated information.

If you have any questions about the forms or forms handling, please do not hesitate to call the project data manager at (614) 299-3151, Extension 2452.

Initial Sequence for Each Teacher-Class

1. Each satellite will receive 30 blank copies of Form 4 (class and teacher information.)

2. Each satellite will see to the completion of a Form 4 for each teacher class and return to Battelle.

3. Each satellite will receive a Form 1A (Student Description) prepared for each class identified on the Form 4's. This Form 1A will contain the class/model identification, teacher identification, and student codes.

4. Each satellite will see to the completion of each Form 1A (student name, entry date, birthdate, etc) and return the Form 1A to Battelle.

5. Each satellite will receive two forms, Form 1A and Form 1B, for each class.

   a. Form 1A will contain the completed student descriptions for the satellite records. This form is then to be used to indicate new entering students and exiting students.

   b. Form 1B (Student Performance) will contain the names of students identified as being enrolled in each class and will contain spaces for entering student performance data.

Iterative Updating Sequence

6. Each satellite will periodically review Form 1A (Student Description) for student drops and adds.

   a. As frequently as possible, Form 1A with indicated changes should be sent to Battelle.

   b. Battelle will return an updated Form 1A with additional student codes.

7. Each satellite will see to the completion of Form 1B (Student Performance).

   a. After data entry, Form 1B should be sent to Battelle.

   b. Battelle will return an updated Form 1B for the satellite's review and a new Form 1B with spaces for the next performance data collection.

Additional Guidelines

1. Battelle will assign all class, teacher, and student codes. Once a code has been assigned, that code will always be associated with the particular class, teacher, or student. You will be notified of the class and teacher codes upon Battelle's receipt of Form 4. Specific student codes will be indicated on the Form 1A and 1B which will be sent to you. Additional spaces and codes will also be provided for students entering without a code.

2. Always use Form 1A as the master enrollment list. As students enter and exit, record this on Form 1A and send it to Battelle as frequently as possible. The currency of the Form 1B (Student Performance) will depend on your maintaining an accurate record of student enrollment using Form 1A.

3. The term "class" refers to one or more students under a single teaching model. Class does not necessarily refer to a physical location within a school building.

Satellite _____ Date Prepared ____/____/____
Mo. Day Yr.

Form 4A - Class Information — Please fill in this section for each model class in the satellite area.

Date of Class Entry into Program ____/____/____

Model Type: Code No.____ Description_____

School District_____ County_____

Building Name_____ Level: P I J S

No. of EMR Teachers in this class____

No. of Students in this class (est.)____

Form 4B - Teacher Information — Please fill in this section for each teacher in the model class identified above.

Date of Teacher Entry into this Class ____/____/____

Teacher Name_____
Last First Middle

Date of Birth____/____/____ Sex____ Race_____

Teaching Experience in this type of model_____ _____
years months

Total Teaching Experience with EMR's _____ _____
years months

Other Teaching Experience _____ _____
years months

Highest Degree (circle one): none BA MA PhD EDD

Major Area of Study (circle one) : spec. ed. elem ed. sec. ed. other

Minor Area of Study (circle one) : spec. ed. other

Battelle Use Only:

_____ DP (1-6)

_____ C-Code (7-11)

_____ N or C (12)

_____ Entry (13-18)

_____ M (19-20)

_____ SD (21-27)

_____ C (28-30)

_____ B (31-37)

_____ Lev (38-40)

_____ T (41) _____ S (42-43)

_____ T-Code (1-5)

_____ Entry (6-11)

Name (12-31)

_____ Birth (32-37)

_____ S (38) _____ R (39)

_____ Y (40-41) _____ M (42-43)

_____ Y (44-45) _____ M (46-47)

_____ Y (48-49) _____ M (50-51)

_____ DEG (52)

_____ MAJ (53)

_____ MINOR (54)

FORM 1A (STUDENT DESCRIPTION) SATELLITE - ASHTABULA COORDINATOR - WILLIAM HYDE DATE PREPARED - 02/02/73 PAGE 1 OF 1

SCHOOL BUILDING - NORTH ROAD MODEL - 02 CLASS - C1220 TEACHER(S) - T1220 HAWN, CATHY JUNE

INSTRUCTIONS - PLEASE PRINT THE INFORMATION BELOW FOR ALL STUDENTS IN THIS CLASS OR MODEL.
WE WILL RETURN AN UPDATED COPY OF THIS FORM FOR YOUR RECORDS.

	STUDENT CODE	FULL NAME (LAST, FIRST MIDDLE)	NICKNAME OR NAME-CALLED	PRESENT CLASS ENTRY DATE (MM/DD/YY)	CLASS EXIT DATE (MM/DD/YY)	ENTRY INTO FIRST EMR PROG. (MM/DD/YY)	*RACE	SEX	BIRTHDATE (MM/DD/YY)	STUDENT CODE
CURRENT CLASSROOM ENROLLMENT	S1576			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1576
	S1577			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1577
	S1578			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1578
	S1579			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1579
	S1580			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1580
	S1581			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1581
	S1582			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1582
	S1583			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1583
	S1584			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1584
	S1585			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1585
	S1586			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1586
	S1587			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1587
	S1588			-- -- --	-- -- --	-- -- --	----	---	-- -- --	S1588

* -- RACE CODES -- I - AMER INDIAN, B - BLACK, E - ESKIMO, M - MEXICAN-AMER, O - ORIENTAL, P - PUERTO RICAN, W - WHITE, X - OTHER

FORM 1R (STUDENT PERFORMANCE) SATELLITE - ASHTABULA COORDINATOR WILLIAM HYDE DATE PREPARED - 02/02/73 PAGE 1 OF 1

SCHOOL BUILDING - NORTH ROAD MODEL - 02 CLASS - C1220 TEACHER(S) - T122C HAWN, CATHY JUNE

INSTRUCTIONS - PLEASE PRINT THE TEST RESULTS BELOW FOR ALL STUDENTS IN THIS CLASSROOM OR MODEL. FOR ENTERING STUDENTS, COPY THE STUDENT CODE FROM THE STUDENT MASTER CONTROL FORM. PLEASE DO NOT REPORT THE SAME TEST RESULTS MORE THAN ONCE. WE WILL RETURN AN UPDATED COPY OF THIS FORM FOR YOUR REVIEW.

	STUDENT CODE	FULL NAME (LAST, FIRST MIDDLE)	NICKNAME OR NAME-CALLED	IQ TEST: IQ SCORES PERF	VERB	TOTAL	IQ TEST: TEST NAME	IQ TEST: DATE GIVEN (MM/DD/YY)	METRO ACHIEVEMENT TEST: RAW SCORES READ	MATH	LEVEL*	METRO ACHIEVEMENT TEST: DATE GIVEN (MM/DD/YY)	STUDENT CODE
CURRENT CLASSROOM ENROLLMENT	S1576	HOUSEL, DAVID LEE	DAVID	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1576
	S1577	JACKSON, ERIC	ERIC	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1577
	S1578	MONROE,DAVID GEORGE	DAVID	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1578
	S1579	NICHOLS,RICHARD R	DENNY	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1579
	S1580	WHITEHOUSE,RONALD C	RON	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1580
	S1581	DARNELL, DONNA G	DONNA	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1581
	S1582	FLUHARTY, LISA J.	LISA	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1582
	S1583	FRENCH,TAMMY MARIE	TAMMY	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1583
	S1584	MITTER, AGNES PEARL	AGNES	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1584
	S1585	RACZ, LISA LEE	LISA	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1585
	S1586	RECSER, SHARON M.	SHARON	---	---	---	-----	-- -- --	---	---	---	-- -- --	S1586

* -- TEST LEVELS -- 1 - READINESS, 2 - PRIMER, 3 - PPIMARY I, 4 - PRIMARY II, 5 - ELEMENTARY, 6 - INTERMEDIATE, 7 - ADVANCED

ESEA TITLE III
PROGRAM MODELS FOR EMR STUDENTS
FINANCIAL INFORMATION

Classroom Code_____ Date Prepared_____/_____/_____ (1-11, "1")

Building Name_____ Area: LC SC U R (13)

District Name_____ Battelle: S_____ D_____ (14-27)

General Information		Total	EMR	
ADM Students	School District	___,___,___	___,___,___	(28-39)
	School Building	___,___,___	___,___,___	(40-47)
	EMR Classroom	___,___,___	___,___,___	(48-53)
Total Classrooms	School District	___,___,___	___,___,___	(54-59)
	School Building	___,___,___	___,___,___	(60-65)

Financial Summary (dup 1-11, "2")

Line 1	Administration	___,___,___	(13-18)
2	Staff Support	___,___,___	(19-24)
3	Supervisor of Instruction	___,___,___	(25-30)
4	Direct Instruction	___,___,___	(31-36)
5	Auxiliary Services	___,___,___	(37-42)
6	Operation and Maintenance	___,___,___	(43-48)
Total Model Expenditures		___,___,___	(49-54)
ADM of EMR Students		___,___,___	(55-58)
Average Cost per EMR		___,___,___	(59-62)

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[redacted] MISSING FROM THE DOCUMENT THAT WAS SUBMITTED TO ERIC DOCUMENT REPRODUCTION SERVICE.

PP. 71, 72, 73, 74, 75

Objective IIC Implement the evaluation design by September, 1972.

Throughout this entire project, the Coordinating Center and the satellite centers have worked closely with the Ohio Division of Special Education in implementing and coordinating the objectives for this project. The development of the models and the implementation of the creation of new classrooms representing those models became a very important part of the project during the spring of 1972. Although it was originally anticipated that the project could select from classrooms representing various models within the State school systems, it was recognized during the winter of 1972 that such classes did not, in fact, exist in any organized or coordinated basis. Thus, the spring and summer of 1972 became a time when the development of guidelines and the development of forms to accept proposals to begin experimental classrooms in Ohio began. The project satellite coordinators worked very closely with the EMR section of the Division of Special Education on the development of the forms used to originate those original models. The Title Coordinators then worked with local EMR supervisors and other local staff personnel to assist them in the development of the proposals for the creation of those models. This process continued from May, 1972 until the actual creation of those classes in September of 1972. Because those classes were not on-going in the State during the first two years of the project, the actual pre-testing of classroom models could not meet the time deadline as anticipated in the original proposal. Recorded in Appendix A are copies of the guidelines for the development of models and criteria for the establishment of nine different experimental models and an application form for that original set of proposals.

As Title III Coordinators worked with local people in the development of those classrooms, a great deal of time was spent helping write the proposal and helping structure the various models. These proposals were submitted to the Division of Special Education through the Title III Satellite Centers, and the State-wide Coordinating Center in Mentor. Project personnel were involved in the creation, adoption, and the development of these models. This represents the major unanticipated outcome of the project in that the development of these models consumed a great deal of project time that was not anticipated originally in the proposal. As is indicated in the report from Battelle, the Ohio Special Achievement Inventory (OSAI) was ready for pre-testing students in September and October of 1972. The actual classrooms and students involved in those various models were not in operation, in most cases, until October, November, and December of 1972. Thus, the pre-testing was on a staggered basis and consumed, in many cases, the entire fall per model area although each particular classroom was tested within a shorter period of time. The project continued to accept classrooms within the various models as late as the last month of the project, January, 1973. Pre-testing was also continued into January of 1973. Thus, the pre-test scores reported in Table V represent staggered input rather than a clear and neat one month interim as was originally anticipated. Further refinement on the development of guidelines for the models and solicitation of additional models for the coming years continued to be part of the role and function of the Title III Satellite Coordinators. However, the objective at that point was to transfer that role to the local EMR supervisor and the local administration of particular school districts who were creating the classrooms within each experimental model. As indicated in Table III, there were as of January 31, 1973, 99 classes involved in the various models.

TABLE III
TOTAL MODEL CLASSROOMS AS OF 01/25/73

Satellite Name	Total Received	01 Self-Contained Classroom	02 Modified Self-Contained Classroom	03 Selected Academic Placement Program	04 Selected Educational Placement	05 Half Time Placement Program	06 EMR Learning Center	07 IGE/ MUS-E	08 Main-streaming Program	09 Non EMR Services Program	10 Other
Akron	15	2	0	12	0	0	1	0	0	0	0
Ashtabula	5	0	4	0	0	0	1	0	0	0	0
Athens	3	0	0	0	0	0	3	0	0	0	0
Hamilton	18	0	4	4	0	0	10	0	0	0	0
Louisville	12	2	2	2	0	1	5	0	0	0	0
Mentor	16	0	0	2	2	0	12	0	0	0	0
Toledo	15	4	0	0	0	5	6	0	0	0	0
Tuscarawas	15	12	0	1	0	0	1	0	1	0	0
TOTALS	99	20	10	21	2	6	39	0	1	0	0

Objective IID Begin the evaluation of EMR models during September, 1972 - January, 1973.

As indicated in the previous objective, the actual classrooms began anywhere from September through January, 1972-1973. Pre-test scores were taken on using the Ohio Special Achievement Inventory and the reading and arithmetic sections of the Metropolitan Achievement Tests. The results of those tests, measuring 1,204 students, are in the Coordinating Center. Sample copies of the print out sheets from Battelle are included in Appendix A. The evaluation design calls for post test scores to be gathered in May of 1973, but because of the staggered pre-test dates and the short amount of time interim between, in some cases January and May, the probability of significant gain scores of any students is decreased. However, dates of pre-testing, interim periods between pre and post testing have all been recorded and the statistical analysis will be attempted in the next project.

Table IV lists indicate some of the basic statistical data of those first pre-test scores. The I.Q. scores recorded represent individually administered tests. Although there are over 775 "total I.Q." scores indicated, there were more than 1,200 students in the model classes. This means that there were many students whose scores were not recorded. It seems important that there is only one statistically significantly different mean I.Q. score for the various models. This occurs in the Verbal I.Q. mean scores between the selected educational model and the learning center. The small number of selected educational model students (6) makes this statistically significant finding less meaningful and thus is interpreted as a sampling artifact rather than one representing a true discriptor of the model.

Further analysis of I.Q. scores per type of model at each level (primary, intermediate, junior, senior) also showed no significantly different mean I.Q. scores. This indicates that students were placed in particular models independent of their I.Q. score. Although there were not statistically significant differences, there was a pattern of I.Q. scores to higher for the self contained classes than the learning center at the elementary level and lower than learning center at the secondary level.

The results of the pre-testing on the Ohio Special Achievement Inventory (OSAI) are recorded in Table V. The OSAI instrument is described in detail in Objective IIA of this report. Raw scores of student responses to the pre-test were standardized for each of the 14 curriculum areas. Test results for each of the standardized scores were then listed for all students at each level (primary, intermediate, junior high and senior high) for seven different models. These standard scores (Z) were then transformed by the following formula to eliminate negative scores and increase the total amount:

$$\text{transformed score} = Z\,(10) + 50$$

TABLE IV

MEAN I.Q. SCORES (PERFORMANCE)

	MODEL	$\bar{X}$	σ	N
1.	Self-Contained	72.917	8.490	24
2.	Modified Self-Contained	78.500	9.847	18
3.	Selected Academic	76.294	8.528	17
4.	Selected Educational	80.667	7.367	6
5.	Half-time Placement	74.667	4.619	3
6.	Learning Center	76.522	12.158	69

MEAN I.Q. SCORES (VERBAL)

	MODEL	$\bar{X}$	σ	N
1.	Self-Contained	75.250	7.719	24
2.	Modified Self-Contained	73.087	6.149	23
3.	Selected Academic	74.941	9.344	17
4.	Selected Educational	80.000	3.347	6
5.	Half-time Placement	75.000	3.317	5
6.	Learning Center	72.786	6.747	84

MEAN I.Q. SCORES (TOTAL)

	MODEL	$\bar{X}$	σ	N
1.	Self-Contained	71.031	7.624	64
2.	Modified Self-Contained	71.323	7.473	96
3.	Selected Academic	71.526	7.158	78
4.	Selected Educational	73.083	6.762	12
5.	Half-time Placement	70.200	6.215	10
6.	Learning Center	71.163	7.785	264

TABLE V

PRIMARY OSAI SCORES

MODEL	NO. STUDENTS	CURRICULUM AREAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL AVERAGE
1	82	51.26	50.41	49.49	49.28	50.33	49.58	50.30	51.19	49.83	49.53	50.28	50.58	50.94	49.89	52.64
2	11	47.50	54.38	49.81	52.30	48.20	53.80	44.82	45.67	47.80	51.52	43.81	45.38	54.24	46.74	49.00
3	22	51.25	53.80	50.37	50.21	49.23	48.98	50.65	49.66	53.60	49.14	51.69	54.01	50.03	50.55	50.94
4	10	51.56	56.04	51.33	48.38	48.99	55.57	50.45	48.91	54.16	56.26	50.93	51.89	49.45	52.51	51.89
5																
6	178	49.26	48.53	50.12	50.18	49.97	49.68	49.97	49.77	49.40	49.83	49.94	49.38	49.31	49.96	49.66
8	2	56.70	67.52	50.92	57.86	60.99	58.43	59.00	54.76	60.73	53.90	50.93	53.68	51.56	56.52	56.68

INTERMEDIATE OSAI SCORES

MODEL	NO. STUDENTS	CURRICULUM AREAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL AVERAGE
1	61	51.04	49.07	48.27	48.64	47.26	49.86	47.26	49.86	47.26	49.86	48.89	49.10	50.36	50.26	49.07
2	15	45.99	48.98	50.33	50.39	45.17	48.29	45.17	48.29	45.17	48.29	49.40	47.97	52.94	49.24	48.26
3	72	46.87	51.11	48.39	48.52	51.49	50.36	51.49	50.36	51.49	50.36	49.60	50.38	48.63	47.84	49.78
4	10	57.83	54.60	57.26	53.56	51.97	48.14	51.97	48.14	51.97	48.14	54.77	52.16	53.85	53.80	57.73
5	24	46.03	43.14	41.40	40.43	43.58	44.24	43.58	44.24	43.58	44.24	40.65	44.36	44.90	44.23	43.40
6	283	50.70	50.36	51.27	51.35	50.92	50.66	50.92	50.66	50.92	50.66	50.84	50.61	50.32	50.91	50.79
8	6	57.64	50.35	48.39	48.68	51.55	45.56	51.55	45.56	51.55	[illegible]	58.30	50.06	53.25	48.68	50.48

JUNIOR HIGH OSAI SCORES

MODEL	NO. STUDENTS	CURRICULUM AREAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL AVERAGE
1	70	49.45	51.09	47.52	51.53	48.30	50.50	50.52	50.03	51.48	49.30	50.84	51.92	50.19	51.52	50.30
2	26	55.47	53.31	58.26	47.49	50.34	56.62	56.49	56.99	52.85	56.36	56.66	56.72	56.68	57.52	55.20
3	23	47.80	47.46	47.84	50.58	53.93	43.78	46.49	46.43	55.07	45.96	46.92	45.93	45.45	47.66	47.95
4	11	54.73	56.22	51.31	53.03	55.57	55.55	54.91	58.22	54.04	51.50	54.99	57.53	56.54	53.52	54.90
5	30	48.12	49.00	48.00	49.48	51.20	51.78	51.37	50.25	46.60	48.87	49.63	47.74	48.24	47.15	49.11
6	138	49.66	49.12	50.39	49.48	49.42	48.72	48.40	48.56	48.31	49.96	48.54	48.32	49.28	48.55	49.05
8																

SENIOR HIGH OSAI SCORES

MODEL	NO. STUDENTS	CURRICULUM AREAS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL AVERAGE
1	75	50.19	50.05	49.41	50.99	50.34	50.52	50.45	48.46	47.67	49.24	49.28	49.33	49.28	51.53	49.77
2	26	51.01	53.01	53.41	52.45	50.23	54.24	50.47	53.16	54.77	51.96	50.49	52.24	51.30	50.14	52.06
3	25	48.93	51.45	51.39	52.09	50.02	50.00	51.87	54.19	53.02	52.82	51.47	49.92	52.73	50.15	51.43
4																
5	14	42.49	46.52	50.59	47.96	43.93	45.89	44.53	41.63	44.34	42.85	45.13	50.33	43.23	41.00	45.03
6	37	52.52	48.16	47.61	45.58	51.45	47.52	49.57	51.25	51.44	50.95	51.97	49.76	51.23	50.12	49.94
8																

TOTAL NO. STUDENTS

1251

Curriculum Areas are:

1. Learning to Appreciate, Create, and Enjoy Beauty
2. Learning to be a Responsible Citizen
3. Learning to Communicate Ideas Through Arithmetic
4. Learning to Communicate Ideas Through Reading
5. Learning to Communicate Ideas (Verbally and in Writing)
6. Learning to Earn a Living
7. Learning Homemaking and Family Skills
8. Learning to Keep Healthy
9. Learning to Live Safely
10. Learning to Manage Money
11. Learning to Travel and Move About
12. Learning to Understand One's Self and to Get Along With Others
13. Learning to Understand the Physical Environment
14. Learning to use Leisure Time Wisely

Models are:

1. Self Contained
2. Modified Self Contained
3. Selected Academic
4. Selected Educational
5. Half-Time Placement
6. Learning Center
8. Mainstream

The large number of these scores makes single interpretation very difficult. In general, scores are statistically significantly different from each other ($P > .05$) if the number of students in each group is over 30 and the numerical difference is greater than three. In those cases where the N of either group is below 30, the numerical difference must approach four or five to reach significance. Statistically, significantly different scores indicate that the average responses for a particular group differs from the average response of another group to such an extent that that would happen only five times out of 100 by chance alone.

The following general observations can be made from this descriptive data:

1. Students at the primary level self contained class achieve at the same level as students in the learning centers.
2. Students in the half time model achieve more poorly than other models. However, the 24 students represented there are from only two classes. This probably reflects a sample difference rather than a model difference.
3. Students at the intermediate level self contained class perform below students in the learning center in several curriculum areas.
4. Students at the junior high level in the self contained class achieve as well as or higher than those in the learning center.
5. Students at the junior high selected educational placement model achieve above other students.
6. Students at the senior high level self contained class achieve as well as the learning center students.

Goal III Institute in the State-wide EMR program during the duration of this project an on-going evaluation process which is based on behavioral objectives and which will continue at the termination of the project.

Objective IIIA Refine the evaluation design and instruments with selected evaluation teachers.

Throughout the entire two years of this project, there has been a process evaluation component which has included teachers, EMR supervisors, and our Title III Coordinators in the design of the field testing of every step of the project. The field test forms, which we are presently using, have been refined at least three times, copies of those can be found in Appendix A. Teachers using the field test forms pick up several different kinds of information on each EMR student. The form required a prediction from the teacher on the success or non-success of the student on a particular behavioral objective. T-1 (test 1), means that the teacher actually pre-tests a student. If a student fails, she then teaches the student that particular objective and tests him the second time (T-2). If the student fails at that point, the teacher can re-assess and decide whether or not the objective was relevant or whether she should attempt to continue with that objective or attempt another one. T-3 on the form asks the teacher to come back 30 days after the T-2 test to again test the student on that same objective. For students who pass T-2, this is a 30 day check on the retention of that fact. Form number 2 for the field testing is a form which gives information regarding anecdotal comments a teacher might have about a particular objective, the teaching strategies and/or the materials she used in working toward that objective then a listing of the kinds of skills that the teacher needed to teach that objective. The form 2, the anecdotal sheets, throughout the project were evaluated by local Title III Coordinators and in-put back into the objective, the change in format of the objective was given to the objective refinement committees during the spring of 1972, the summer of 1972, and the fall of 1972 when those objectives were being revised.

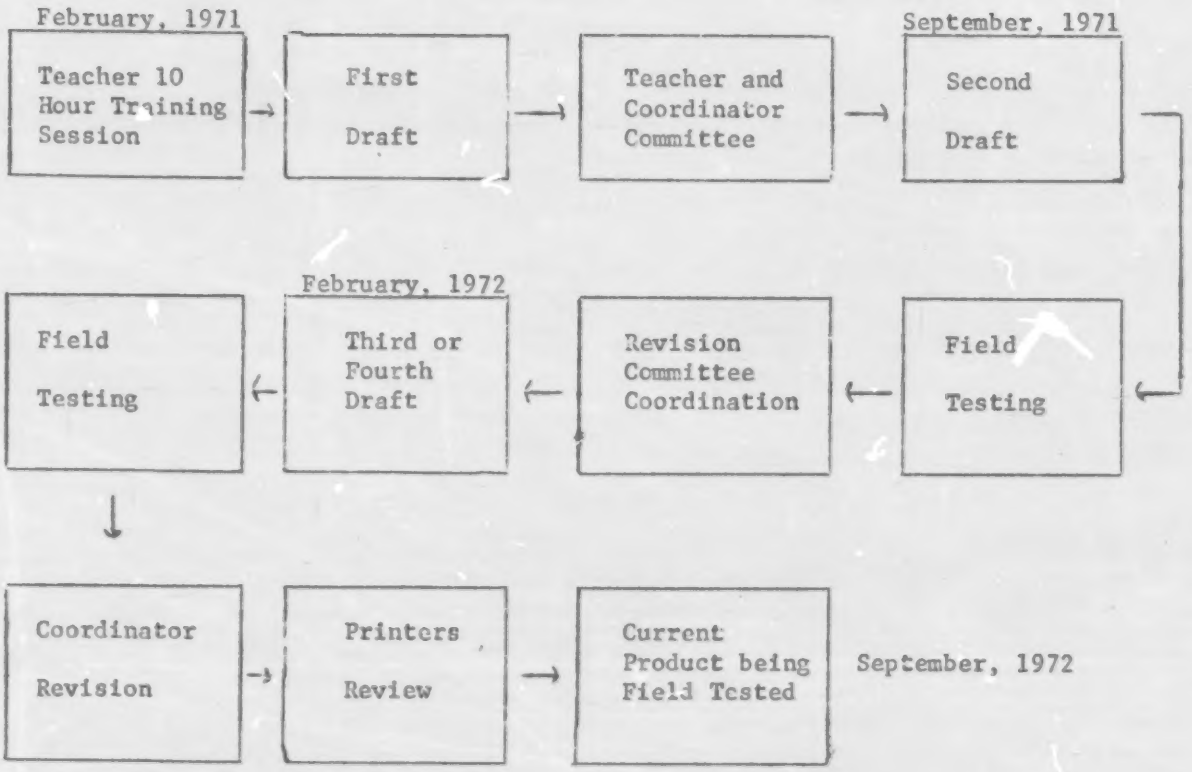
Another part of the refinement of the evaluation design was a series of pilot studies using each of the instruments that are used to record student progress. The first year evaluation has a series of those pilot tests. A pilot test was also done this year on the Multi-Dimensional Attitude Scale of Mental Retardation. The results of the study (see Appendix B) indicate that attitudes of people do differ as they have contact with a mentally retarded child. The study was done in Warren, Ohio, with teachers of educable mentally retarded children and teachers of normal children. Therefore, the refinement of the evaluation design was done basically by selecting instruments that have been used in the past and have been successful with gaining information on these students and then piloting those instruments to make sure that not only can the computer handle the data, but that the data that is gathered is relevant.

Another part of the evaluation refinement relative to the products of this project was the very elaborate system of recording, selecting and preparing objectives.

As this product was created, certain uniform definitions were created and taught to all participating teachers. Each objective written went through a process of revision and investigation outlined in Figure 1.

Figure 1

Process of Creating Each Objective



Yet, another very meaningful part of the process evaluation for this project was the bringing together of all coordinators and IRC representatives from each satellite area on a monthly basis. These Advisory Board Meetings were conducted monthly throughout the two years of the project. Minutes of those meetings can be found in Appendix A. It was during this kind of continuous input and feedback from the local area that managerial decisions could be made and focus of the project could be changed when deemed appropriate. A close investigation of those minutes will reveal that a great deal of business was done and that input from the grass-roots level did have an affect and change in this process.

Objective IIIB Assess pupil gain of teachers who have been involved versus students of teachers not involved.

The intent of this objective was to use a control group of teachers and students to look at student gain of teachers not involved in the project. It became apparent toward the end of the first year of the project that this objective had little chance of being carried out. Because of the regions within which each coordinator was working had a limited number of EMR teachers, and because we asked the coordinators to select the teachers for the first part of the project for the training sessions who were the most responsive and could provide the best input to the product, we had from the beginning, a selected group of teachers who were the experimental teachers. This meant that there was a selected group of teachers who were the control teachers. This, in itself, would bias the result of any kind of experimental-control study. In addition to that, we found that even the control teachers (those teachers not involved in the project), many times had course work and/or experience in behavioral objectives. In the duration of the two years, behavioral objectives became very predominant and a very popular item of instruction and thus we really could find no teacher who was purely non-involved with behavioral objectives. Therefore, a control group of teachers whose background we really did not have control over presented another bias. The third reason that this objective was not met is that the large number of students who were tested as a result of the experimental teachers took a disproportion in the amount of tester time and project dollars and there was not the time needed to test control students deemed by the director, priority time, or dollar expenditure and, therefore, the control children and their teachers were not used.

This is the one single objective that was stated in the proposal which was not met at all and because of the above stated reasons and the difficulty of pre/post data collection, it remains an unmet objective at the end of the two-year project.

Objective IIIC Begin to Disseminate information on the behavioral objectives created.
Objective IIID Begin to disseminate information on evaluation based on behavioral objectives.

Throughout this entire two-year period, the behavioral objectives and the creation of them has, in fact, been part of the dissemination process. Because so many teachers were involved in creating the objectives, they had at their fingertips in the work sessions for the entire two-year period, those lists of objectives that they and their satellite area had created. In February of the first year, the slide presentation with the cassette tape narration was presented to every satellite area for the purpose of explaining the project to that region. In addition to that, the first spring a small, one-page, three-fold brochure was created and throughout the two years, we have disseminated over 3,000. It is presently in its fifth printing. Of course, the proposal itself was printed, distributed in every region in the State involved in the project and hundreds of copies of a brief 15 page description of the project was distributed in each region and to all people inquiring for their information.

During the process of refining the objectives as they went through the fourth, fifth, or sixth draft, they were refined to their present format. Four hundred sets of 15 books were printed through the Coordinating Center in Mentor, Ohio. Those 400 sets have had limited distribution within the State of Ohio, and a distribution list is indicated in Appendix C. That list includes a complete set of objectives to every teacher in a model classroom, a number of sets of objectives for each coordinator to use in teacher training sessions in satellite regions, numbers of copies and numbers of sets were distributed to State department personnel, to the nine major universities in the State, and to the remaining seven instructional resource center programs of each regional special educational service center. In addition, a set was sent to the University of Michigan microfilm, the Bureau for the Education of the Handicapped in Washington, D.C., to the major national consultant, Dr. Edward Meyen.

To accompany the behavioral objectives as they were sent to every instructional resource center in the State, the Coordinating Center and selected regional Title III Coordinators developed a teacher training kit. This kit consists of a teacher-instructor's manual which includes five two-hour modules of instruction on how to use behavioral objectives in the classroom. In addition, the kit contains sets of participant materials, selected reference materials and two film strips concerning the project and the use of behavioral objectives in the classroom. Filmstrip number one entitled, "The Process of Change," talks about the intent of the Title III project and the creation of the behavioral objectives themselves. Filmstrip number two entitled, "Teaching Strategies, The Field Test Process," is a careful description of the field test process including both pre-test and post testing and the field test model. These teacher training kits, 30 in number, were distributed to each instructional resource center, to all nine major university teacher training programs, to selected State department personnel, each satellite coordinator, each satellite region and the Coordinating Center. There were a number of newspaper articles published, copies of selected samples of which are found in Appendix C. At least two articles have been submitted for publication concerning the project for those two years and others are in the developmental stage at this point. (See Appendix C).

Dr. Edward Meyen, national consultant to the project, has addressed State-wide meetings at the end of each year of the project. A copy of his first year comments can be found in the First Year Evaluation. A copy of the outline of his second year comments is included in Appendix B. Of special importance in the second year comments is a summary comparison of this Title III project with three other EMR curriculum projects of national importance.

In December, 1972, the project fiscal agent of the Coordinating Center was requested by the Ohio Division of the Department of Education, office of Title III, to participate in a national validation study. This study conducted through the auspices of Title III at the federal level was an attempt to select from across the nation, those Title III projects which were effective in their region of being recognized in the State of Ohio as one of the top six Title III projects which, in itself, was an honor for the project and part of our dissemination process. The validation study involved the filling out of a very elaborate data collection document by the project director, by the State Department of Education of Title III, and by a team of site visitors who visited with the project for two days in February. A copy of the evaluation report as made by those site visitors is found in Appendix C showing that the project was seen as a very effective project and worthy of national dissemination.

Objective IIIE Continue teacher workshops with 120 teachers of classes in the sample of EMR models.

Throughout this project, the Title III Satellite Coordinators have been involved with training teachers of EMR students. In addition to that training, those school districts which submitted a proposal for an experimental model and were granted permission by the State Division of Special Education to operate such a model had teachers of EMR students who were involved in in-service. As is indicated on the January, 1973 report from Battelle, 99 such classes were involved at the termination of this project. The majority of these classes, as indicated in Table III, are situated in models involving the self contained program, the adapted self contained program, the learning center model. At that point, the mainstreaming model and the half-day model were almost entirely without classes. These teachers were involved in in-service education in the fall of 1972 and have been involved field testing the behavioral objectives during that fall and in the winter of 1973. Field test data in the curriculum areas of arithmetic, reading, and writing has been collected during the last helf of the first year and the entire second year.

In addition to this in-service education and field testing, the models teachers were involved with assisting in the pre-testing of the Ohio Special Achievement Inventory and will continue with the post testing in the spring of 1973. Although originally it was stated that there would be 120 teachers, the number of requests for experimental models did not reach that maximum, therefore, only 99 models were on-going. It is anticipated in the future that additional classes would be included in this target population until we reach the maximum of 120 classes.

Objective IV Train EMR teachers in three major cities of Ohio to write and field test behavioral objectives.

Although five of the eight major cities in Ohio were included in the original satellite areas, the numbers of teachers, the input from those major city areas was not proportional to the number of EMR students in those regions in the first year of the project. As a result, during the second year, an emphasis was placed on including the remaining three major cities as teacher input to the project. Table III indicates the numbers of teachers from Dayton, Columbus and Cleveland, Ohio, who were involved in the spring of 1972 and the fall of 1972. Each of these teachers received 10 to 15 hours of in-service education and field tested behavioral objectives from the project. During that field test process, teachers had opportunity for anecdotal comments on objectives and thus input into the rewriting of objectives before the final draft was printed. It could also be noted, at this point, that those three major cities did present proposals for experimental models (15 classes in Dayton, 2 in Cleveland and 2 in Columbus). Pre/post test scores are also indicated on Table II showing that teachers involved in this in-service education did, indeed, receive significantly higher scores upon completion of the in-service education programming.

E. DISSEMINATION

E DISSEMINATION

Since the dissemination activities of this project were written under a major objective, the results can be found under Objective IIID.

F. RECOMMENDATIONS

F. RECOMMENDATIONS

The results and conclusions of this project have led to many recommendations which have already been implemented. Major among these was the submittal of a proposal to ESEA Title III which would carry out the recommendations. That proposal has been approved, a project "EMR Program Development" has been funded, and is presently in operation carrying out the recommendations listed below. Many recommendations which came as a result of the elaborate process evaluation within the project are not listed.

Major Recommendations:

1. The objectives created should be evaluated through field testing and revised as feedback indicates.

2. Teachers of EMR students who have multiple handicaps should be involved in the training sessions and revision process.

3. The experimental models should continue to be evaluated using the design created in the first two years.

4. An in-service education program should be established, utilizing the university staffs of the nine major teacher training programs in Ohio, based on a performance-competency model.

5. The coordination center-satellite center model should continue as a vehicle to implement objectives in a State-wide project such as this.

A detailed analysis of the results of these recommendations is available on request from the Mentor Coordinating Center. This analysis is the proposal for the project "EMR Program Development."

G. ERIC RESUME

G ERIC RESUME

Noffsinger, Thomas L.

Title - "Program Models for EMR Students"

Mentor Exempted Village School District, Mentor, Ohio
Sponsoring Agency - Ohio ESEA Title III
Report No.
Publication Date - May, 1973
Grant No. - 45-71-207-2
Note - 100

Descriptors - Administration, Mental Retardation Curriculum, Evaluation, In-service Education.

Identifiers - Criterion reference test, Behavioral objectives, Alternative models for EMR students.

This report includes a summary of the major findings of a two-year project involving eight regional satellite centers in Ohio. Major objectives were achieved in setting up a State-wide process of in-service education of EMR teachers. In addition, behavioral objectives and teacher activities were created in 14 content areas representing the "Persisting Life Problems" approach to EMR curriculum. Eight different educational models were identified and classes were initiated in urban, rural, and suburban areas of Ohio. An achievement test based on the EMR curriculum was created and students in the model classes were pre-tested.

The following major recommendations are being carried out, at the present time, in another project. Results of that project will be available at a later date:

1. The objectives created should be evaluated through field testing and revised as feedback indicates.

2. Teachers of EMR students who have multiple handicaps should be involved in the training sessions and revision process.

3. The experimental models should continue to be evaluated using the design created in the first two years.

4. An in-service education program should be established, utilizing the university staffs of the nine major teacher training programs in Ohio, based on a performance-competency model.

5. The coordination center - satellite center model should continue as a vehicle to implement objectives in a State-wide project such as this.

APPENDIX A

N.B. PLEASE PRINT

Title III Project # 45-71-207-1 ©Mentor Exempted Village School District

Objective's Field Test
(Form 2)

Teacher ID T _____ Classroom ID R _____

Objective _____

P M D Y	#	Name	Code	T1 M D Y	T3 M D Y (Pass on T1)	Teach	T2 M D Y (Fail on T 1)	T3 M D Y
	1					xxxxx		
	2					xxxxx		
	3					xxxxx		
	4					xxxxx		
	5					xxxxx		
	6					xxxxx		
	7					xxxxx		
	8					xxxxx		
	9					xxxxx		
	10					xxxxx		
	11					xxxxx		
	12					xxxxx		
	13					xxxxx		
	14					xxxxx		
	15					xxxxx		
	16					xxxxx		
	17					xxxxx		
	18					xxxxx		
	19					xxxxx		
	20					xxxxx		
	21					xxxxx		
	23					xxxxx		
	24					xxxxx		
	25					xxxxx		

P = Prediction
T1 = Pre-Test
T2 = Post Test after testing for those who fail T1
T3 = 30 day post test
1 = Pass
0 = Fail

Title III Project #45-71-207-1 © Mentor Exempted Village School District

BIO Assessment
(Form 2)

Teacher ID T_____ Classroom ID R_____

Objective _____

IRMC Materials Used

Classroom Materials Used

General Comments (Use (1) for Good and (0) for Poor)

	Behavior	Condition	Evaluation
Appropriate to Curriculum			
Relevant to Student			
Appropriate to Age Level			
Clearly Stated			

Specific Comments Related to Testing Results for the Group or Individual

APPENDIX B

Dr. Edward Meyen
University of Missouri

Evaluation Conference
Ohio Title III Project
Columbus, Ohio - January 26, 1973

I. Introduction
   A. My role in this project during the past couple of years has varied.
      1. Dissemination of views and biases.
      2. Reactor to materials and ideas.
      3. As a participant in conversations.
      4. As a rather unobtrusive observer of your activities.
   B. My preference is to function in an interaction role.
      1. I learn from the questions asked.
      2. My responses can be checked out on the spot.
      3. You communicate a great deal about your attitudes, concerns, and perceived reinforcements in the process of interaction.
      4. Interaction allows you to direct the discourse to areas of your concern in contrast to the areas I assume represent your concerns.
   C. The function which is exceedingly important but presents the most difficulty to me because of the nature of my involvement in the evaluation role.
      1. Evaluation implies the making of quality based judgments.
      2. Evaluation allows for positive reinforcement but typically stimulates a concern for the negative aspects of one's work or product.
      3. Evaluative comments - if you will, are as valid and meaningful as the qualifications of the evaluator - You do most of your own evaluating then you need to be concerned with your evaluation skills and obligations.
      4. As a consultant who is only intermittently involved in your project, let me share with you my evaluation frame of reference so that we can reduce the risks of misinterpretation.
         a. I bring to this project, a sincere interest in curriculum development for the mentally retarded which is couched in a context of experience involving varied curriculum development activities.
         b. My attitude towards the involvement of teachers in development and decision making regarding curriculum issues is exceedingly high -- although realistic in that I recognize your history of limited support and opportunity to develop all of the skills essential to curriculum development.
         c. My relationship to this project has not been one of an evaluator with extensive involvement or access to data. Thus, I am working from a perspective which is influenced by only a representative sampling of your progress. These indices are then measured against the expectations I hold for you and your project.
      5. This evaluative frame of reference obviously creates a bias towards identifying and supporting those positive aspects of your project which I heartily endorse.
         a. To focus only on the positive would be to reinforce the obvious and to risk stiffling progress towards a better product and more effective instruction for the handicapped.
         b. Let me acknowledge your productiveness as individuals and your collective progress. Let me also compliment your State agency for its support of such an undertaking and the Mentor Public Schools for their willingness to assume a task having logistic problems which would have been a challenge even to General Patton.

c. Let me then proceed to direct my attention to some areas of evaluation which may warrant your attention. I will be focusing on concerns -- concerns which in total barely tip the scales against the positive credits you have accrued.

d. My approach will be to comment specifically where it is appropriate and in other cases direct your attention to the areas deserving evaluation.

e. Detailed comparison with other projects.

II. Sources of Evaluation Evidence

A. Page four of the grant proposal contains a statement against which I have tended to check my assessment of your progress.

"There is a need to develop a process of change in the educational milieu which will effectively change the behavior of teachers and students as quickly as research evidence is available."

1. Keywords: - change
   - educational milieu
   - behavior of teachers and students
   - evidence available

2. In any discussion which is evaluation oriented, it is essential to identify the evidence on which evaluative judgments are made.

B. Source of Evidence: There are two sources of evidence, i.e., the observable progress related to specified objectives and the less apparent but possibly most important evidence which comes in the form of professional growth.

Observable Evidence

1. Product - Objectives

a. The process of developing the objectives will likely prove to be more value than the objectives - return to this statement.

b. The objectives serve several purposes beyond a basis for evaluating models.

1. They collectively define the specifications for a curriculum.
2. They serve to draw attention to curriculum areas typically overlooked, e.g., art appreciation.
3. They effectively communicate the importance of incorporating the teaching of basic skills with application skills.
4. They provide teachers with the necessary curriculum support on which to push for materials and needed resources which are relevant to the kids they teach.
5. They are highly visible and represent observable evidence of a curriculum effect in special education.
6. They can serve as a very useful tool in the structuring of units of instruction, i.e., reorganizing objectives according to topical areas.
7. They can be used by groups of teachers in a building or system as the basis for curriculum planning. They could organize the objectives in parallel linear fashion to reflect the intended scope and sequence of their program by level. In such an activity, the objectives as discrete objectives become the focal point of the planning efforts. Decisions are made by the teachers regarding the validity and sequence of the objectives.
8. As individual and groups of objectives, they have tremendous use with the stations approach where selected interest or topical related objectives can be related to needed materials and used as self directed instruction.
9. They serve as a major resource to teachers in designing evaluation programs to assess groups and individual progress.

10. They provide a means for orienting teachers, administrators, and parents to curriculum and to levels of expectation for kids in a particular program.

c. Concerns 1. They continue to vary in specificity and in general are too specific.
The specificity gives you a false sense of confidence.
The user assumes greater completeness than exists.
The sequence also implies an order which may not exist.

2. To be of maximum use, the teacher must be acquainted with all of the objectives which are relevant to her group. It would also be advantageous if she were knowledgeable of the objectives which are relevant to the group above and below hers. In the present form, it is a laborious task for a teacher to obtain such familiarity with the objectives.
Could you design a fold out chart which presents the basic dimensions of the curriculum in a visual manner - add to outline.

3. Teacher will need help in reorganizing objectives for particular purposes. Examples of unit organization or for remediation on a particular problem might encourage more use of them.

4. Entry into the objectives is not difficult, given that a teacher has a reason for using them, could you provide a manual which sites examples and of user and procedures to illustrate how the objectives were used.

2. Structure as Evidence
   a. Low attrition rate
   b. Maintaining reasonable schedule
   c. Testing procedures designed and data being retrieved
   d. Your organization has allowed you to meet most deadlines and to produce your product goal.

   Apparent but Undocumented Evidence
   1. New skills
      a. teacher
         1. writing objectives
         2. working on curriculum team
         3. curriculum organization
         4. integration skills
         5. negotiation - hopefully in reaching agreement on objections
   2. Attitudes
      a. toward the project
      b. toward objectives
      c. toward curriculum development activity
      d. toward future investment
      e. toward evaluating curriculum
      f. toward evaluating project performance against curriculum objectives

III. Comparison of Ohio Project against one other project as a means of sharpening your perception of where you are in terms of evaluation.
B.S.C.S. Transparencies

IV. Comparison of Ohio Project status
Yeshiva
Connecticut
BSCS

Transparencies

Comparison presented to remind you of other projects.

- stimulate you to think of how you will use them
- encourage you to make comparisons and gain from the evaluation efforts of others
- give you confidence in your achievements

Summary

1. You have made great strides.
2. You have a product with capabilities.
3. Your product can not stand alone.
4. You need to invest in making it useable -- give teachers a purpose for use.
5. You have demonstrated that a large field based-teacher oriented model can work -- that in itself is an achievement.

	Model	Process
Ohio	Behavioral Objectives Need Area Level Terminal Instructional Content Analysis	Curriculum - Secondary Goal Evaluation - Primary Goal Multi Level Field Based Production Evolving Skills Central Control Ohio Based State Agency Accountability
Yeshiva	Expanding Conceptual Model Inductive Teaching Cognitive Levels	Curriculum Product Goal Internal Decisions Justification Base Development Model Staff Team Assigned Tasks Heavy Field Test Content Oriented
Connecticut	Interactive Model teacher-pupil-material	Curriculum Product Goal Math for EMR Plus Central Staff Production Subject Matter Influence Design - Method - Skills - Activities - Assess
BSCS	Ecological Model Inquiry Strategy Cognitive Levels 4 Applicational 3 Relational 2 Conceptual 1 Perceptual	Curriculum Product Goal Subject Matter Influence Learner Assessment Writing Team Oriented Quality Product Oriented Strong Formative Process

	Staff	Field Test
Ohio	Teacher Task Force Administrative Core Coordination Force Consultants	Ohio (only) Across Models No Content Control No Teacher Contrast Groups Target Objective Not Curriculum Formative only Pupil Data
Yeshiva	Center Concept Development Core Related Units Evluation Media Research No Subject Matter Specialist Field Feedback	Nationwide Planned & Fortuitous Large Scale Major Coordination Thrust Field Test/Interpret/Research Cycle Formative & Summative Criterion Measures Teacher Feedback
Connecticut	Development Core Special Ed type Subject Matter Specialist Formative use of Consultants Media	Regional (selective) Assumed Representativeness Central Coordination Vaired Arrangements Formal Feedback Testing Formative Emphasis
BSCS	Curriculum Team (small) Spec. Ed. Evaluation Science Writing Team (heavy) Advisory (limited)	National Pockets Formative Emphasis Plus Summative Central Coordination Evaluation of Material and Products Prior to Publishing

	Format	Cost Priorities
Ohio	Behavioral Objectives Implied Content Multiple Entry Flexible Design Teacher Control Card System Limited Activities Individual	Teacher Work Costs Coordination Product Costs
Yeshiva	Linear Design Detailed Teacher Direction Pupil Materials Social Focus - broadly based Teaching Method Influences Group	Central Staff Field Test Evaluation Independent Resources
Connecticut	Skill Oriented Activity Structure Laboratory Kits Multi Media Multiple Entry Open Ended Strands Individual Language Control	Central Staff Activity Product Costs
BSCS	Package Teacher Manual Activities Resource Content Evaluation Multiple Entry Group	Writing Teams Media Production Central Staff Purchase of Resources

	Status	Observed Problems
Ohio	Objectives Teacher Skill Field Test Incomplete Entry Teacher Ed. Plans	Required Teacher Knowledge Management for Use False Confidence
Yeshiva	"Self" in print Family - Field Test Secondary - Plan BIPP - Plan Research Established Center	Entry Scope Curriculum Influence Group
Connecticut	Numbers-Operations-Sets in Field Test All Development Except Fractions Laboratories Nearing Completion	Time Lag Teacher Knowledge Management Time Quality Control Data
BSCS	Me Now - Upper Elem. Print Me & My Environment - Junior High - Field Test Me As an Adult - Study Pre-Me-Now - Study Lower Elementary	Integration Teacher Acceptance

Dr. Edward Meyen
University of Missouri

Ohio Project
Implications for the Future
Columbus, Ohio - January 26, 1973

I. Introduction
   A. Planning the future of a project such as this involves a certain amount of speculation.
      1. present momentum
      2. unforeseen events
      3. personality variables
      4. generated expectancies
      5. planned goals
   B. Your future is also greatly influenced by your track record.
      1. teachers you worked with
      2. school districts
      3. perceived value of your product
      4. State agency assessment
   C. Your future is also influenced by your ability to apply what you learned.
      1. new skills-teachers-coordinators
      2. logistic problems
      3. selection of people, i.e., matching talent with task
      4. reward systems - What seemed to provide you the least return?
      5. what payoff from consultants?
      6. reasonable goal setting - Did you take on overly ambitious tasks last year?
      7. What tasks were the most difficult?
      8. Where did you fall short on resources?
      9. Did last year's activities uncover needs related to general goals of the project? If so, can you operationalize these into objectives?

II. Conversation with Dr. Noffsinger
   A. A basic question emerged relative to the future, i.e., "do we have a curriculum?"
      1. In its present form, the collection of objectives makes too many assumptions to be considered a curriculum with substance.
         a. Assumes teachers know how to use the objectives in planning their program.
         b. Assumes that teachers can recognize the inconsistencies in specificity and can make appropriate judgments in establishing a balance in the curriculum.
         c. Assumes that teachers have the skill to reorganize the objectives according to a strategy from which they can teach and in turn select or develop materials, e.g., units, core areas, stations, etc.
         d. A substantive rationale for the designer, selection of areas, and interrelatedness of content is missing. In other words, a justification for the design and content is needed along with guidelines for application in classrooms and programs.
         e. At best, it represents a curriculum only for a few select teachers who understand the development process - the intent- and who are sufficiently knowledgeable to make the transition from objectives to organization for her situation, to planning for kids, to teaching.
   B. The planned goals discussed included:
      - enhancing the use of the objectives by all Ohio teachers
      - implications for teacher education
      - broadening development goals to include readiness and vocational skills

1. Enhancing use of objectives
   a. Models of different uses is essential - guidelines are not enough
      1. units using objectives as outline
      2. teacher made tests based on objectives
      3. kits to teach skills and information which uses objectives as the specifications
      4. stations - where objectives are related to activities with self connecting criterion
      5. model classrooms to be visited where teacher is employing the objectives
      6. reporting (pupil progress) procedures based on objectives
      7. teacher training games to be used in in-service training
      8. packaged audio taped programs to teach teachers to write objectives and to evaluate the system for their needs
      9. anecdotal accounts of how teachers have used them with provision for personal contact
      10. sample materials lists which are based on selected objectives
      11. curriculum plans which have been reconstructed and designed to fit a local program or class
   b. Need an in-service system which:
      1. assures dissemination of information
      2. access to objectives
      3. access to instruction
      4. access to models
      5. use teacher as instructor
      6. module development
      7. include options for teacher learning
2. Implications for teacher education.
   a. You have a resource to offer teacher education - training base - model - data - skills
   b. The need for pre-service programs to incorporate training applicable to the project is essential
   c. Need to determine the competencies required to:
      1. understand the objectives
      2. to teach them
      3. to construct them
      4. to translate them to teaching strategies
   d. The competencies will be 90% generic.
   e. Need to come up with an instructional model which:
      - has quality control over content
      - is sufficiently viable to allow for revision
      - provides alternatives for student behavior
      - allows for selected involvement of professors and classroom teachers in training
      - will sustain itself without project support and monitoring
      - draws upon field talent as well as professor talent in developing experiences
      - allows for skill attainment as well as satisfying of degree requirements
      - is mutually acceptable to participating teacher training institutions

3. Future plans - readiness - vocational
   a. both are high priority nationally
   b. careful to assess your own readiness for expansion
      - your tasks related to improving the package and teacher training is enough to tax your energy and resources
   c. Prior to expanding the objectives in either direction, it is important for you to first know what you have in the present package. You need to complete the field test - find out how useable the objectives are.
   d. Given proven value and validity, you would need to assess the cost effectiveness of producing objectives thrcugh teacher teams. With fewer teachers of the preschool and vocational levels, another process may be more effective.
4. Pre-School - implicaticns
5. Vocational - implications
6. Area worth considering when ready
   - severely handicapped
   - high priority
   - objective format most appropriate

APPENDIX B

PILOT STUDY WITH THE MASMR

The Multidimensional Attitude Scale on Mental Retardation (MASMR) has been developed to asse s the attitude of people toward mental retardation in five major areas.* Those areas and a brief description of the interpretation of scores in those areas follows.

1. Integration-Segregation (INSE)

   The higher scores on this subtest indicate that the person taking the test favors integrating retarded children into regular classes. Lower scores indicate that the person favors placement of retarded children in special classes.

2. Overfavorableness (OVER)

   The higher scores on this subtest indicate a willingness of the respondent to attribute overfavorable characteristics to the retardate.

3. Social Distance (SDIS)

   The higher scores on this subtest assume that the respondent does not mind recognizing, living near, or being associated with retardates.

4. Private Rights (PRRT)

   The higher scores on this subtest indicate that the respondent sees the needs of the retarded as overshadowing the private rights of school personnel, playground officials, landlords, etc.

5. Subtle Derogatory Beliefs (SUBT)

   The higher scores on this subtest assume that the respondent is not subtly derogatory to the mentally retarded.

   Lower scores assume the respondent to be subtly derogatory towards the retarded.

Scoring

The MASMR is relatively easy to score. The Scoring Guide lists the point value for each response on each item. The List of Items and Subtests gives the items that belong to each subtest. To get a subtest score, add the point value of each item in a subtest. For example, the subtest Integration-Segregation includes the following items: 1, 6, 11, 16, 21, 26, 31, 36, 41, 46. To get a subtest score for Integration-Segregation, determine (with the Scoring Guide) the value of each item in that subtest. The sum of these item values is the subtest score. This is repeated for all subtests.

One can also obtain a Total Attitude Score by summing the subtests. However, this score is of less value in terms of specifying the dimensions of a person's attitude picture.

*For a more complete description of the subtests, see Harth, R. Attitudes toward minority groups as a construct in assessing attitudes towards the mentally retarded. Education and Training of the Mentally Retarded, 1971, 6, 142-147.

TITLE III - PROGRAM MODELS

OPINION INVENTORY

1. Name_____

2. Age: 20 - 30 _____
31 - 40 _____
41 - 50 _____
51 & over _____

3. Sex Male _____ Female _____

4. School Building and District:

_____/_____

Classroom Number _____
(for EMR teacher only)

5. Relationship to the EMR class:
Parent _____
Principal _____
Supportive Personnel _____
(nurse, psychologist, etc.)
EMR Teacher _____
Regular Teacher _____
Non-Certified School Employee _____
(janitor, cook, etc.)

6. Number of years experience _____ in general education
_____ in special education
_____ in present position

Here are some questions we are asking different people. Please give your own opinion. There is no right or wrong answer.

This booklet contains number statements. Read each statement carefully.

--If you strongly agree with it, put a check in the column marked "Strongly Agree."
--If you only mildly agree with it, put a check in the column marked "agree."
--If you mildly disagree with it, put a check in the column marked "disagree."
--If you strongly disagree with it, put a check in the column marked "Strongly Disagree."

Respond to each statement. Put only one check for each statement.

Now turn the page and go ahead. WORK FAST!

	Strongly Agree	agree	disagree	Strongly Disagree
1. The mentally retarded child should be integrated into the regular class.	—	—	—	—
2. There is nothing to the idea that the retarded child's problems in many situations have built in him a stronger character than the non retarded child.	—	—	—	—
3. I would allow my child to accept an invitation to a birthday party given by a retarded child.	—	—	—	—
4. A Sunday school teacher ought to have the right to decide for himself whether he is going to let a retarded child enter his class.	—	—	—	—
5. Retarded children sometimes imagine they have been discriminated against even when they have been treated fairly.	—	—	—	—
6. School officials should not try placing retarded and non retarded children in the same classes because problems would arise.	—	—	—	—
7. I think that retarded children have a kind of quiet courage which few non retarded children have.	—	—	—	—
8. I would not take a retarded child to eat with me in a restaurant where I was well known.	—	—	—	—
9. There should be a strictly enforced law requiring school personnel to admit children regardless of whether or not they are retarded.	—	—	—	—
10. Some retarded children are so touchy that it is difficult to get along with them.	—	—	—	—

GO ON TO NEXT PAGE

	Strongly Agree	agree	disagree	Strongly Disagree
11. We should not put retarded and non retarded children in the same class until retarded children can behave as well as non retarded children.	—	—	—	—
12. Suffering and trouble have made retarded children better able to understand the stresses and strains of modern life than most non retarded children.	—	—	—	—
13. I would rather not have retarded children swim in the same pool as I do.	—	—	—	—
14. A person should not have the right to run a school in this country if he will not admit retarded children.	—	—	—	—
15. Although social equality between retarded and non retarded children may be the democratic way, a good many retarded children are not yet ready to practice the self-control that goes with it.	—	—	—	—
16. Integrating retarded and non retarded children in the same class will result in greater understanding between retarded and non retarded children.	—	—	—	—
17. There is no basis in fact for the idea that retarded children withstand misfortune more courageously than do most non retarded children.	—	—	—	—
18. I am willing for my child to have retarded children as close personal friends.	—	—	—	—
19. Playground officials have the right to refuse service to anyone they please, even if it means refusing retarded children.	—	—	—	—
20. Many retarded children waste time playing in class instead of trying to do better.	—	—	—	—

GO ON TO NEXT PAGE

	Strongly Agree	agree	disagree	Strongly Disagree
21. Placing retarded and non retarded children in the same class will be beneficial to both the retarded and non retarded.	—	—	—	—
22. There is no reason to believe that retarded children have suffered in the past has made them more noble people than are non retarded children.	—	—	—	—
23. I would be willing to go to a competent retarded barber.	—	—	—	—
24. In areas where they have been given an opportunity to advance, retarded children have shown that they are good sports and gentlemen.	—	—	—	—
25. Even if there were completer equality of social opportunity, it would take a long time for retarded children to show themselves equal to non retarded children in social situations.	—	—	—	—
26. Integrating the retarded and non retarded into the same classes should not be attempted because of the turmoil it would cause.	—	—	—	—
27. I think that retarded children have a sense of dignity that you see in few non retarded children.	—	—	—	—
28. I would rather not have retarded people as dinner guests with most of my non retarded friends.	—	—	—	—
29. If I were a school principal, I would resent it if I were told that I had to serve retarded children.	—	—	—	—
30. Even though retarded children are in public school, it is doubtful whether they will gain much from it.	—	—	—	—

GO ON TO NEXT PAGE

	Strongly Agree	agree	disagree	Strongly Disagree
31. Assigning retarded and non retarded children into the same class is more trouble than it is worth.	—	—	—	—
32. There is nothing to the idea that retarded children have more sympathy for other handicapped children than most non retarded children do.	—	—	—	—
33. I have no objection to attending the movies or a play in the company of retarded children.	—	—	—	—
34. Real estate agents should be required to show homes to families with retarded children regardless of the desires of the home owners.	—	—	—	—
35. Even though some retarded children have some cause for complaint, they would get what they want if they were more patient.	—	—	—	—
36. I feel in sympathy with responsible people who are trying to integrate retarded and non retarded children into the same classes.	—	—	—	—
37. In this day of rush and hurry, the retarded child has met the problems of society in a much calmer manner than the non retarded child.	—	—	—	—
38. If my child were invited to be a guest of a group of retarded and non retarded children on a weekend pleasure trip, I would probably not let her go.	—	—	—	—
39. If I were a landlord, I would want to pick my own tenants even if this meant only renting to families with non retarded children.	—	—	—	—
40. The problems of prejudice towards retarded children has been greatly overexaggerated by parents of retarded children and by special educators.	—	—	—	—

GO ON TO NEXT PAGE

	Strongly Agree	agree	disagree	Strongly Disagree
41. Since grouping on the basis of ability has been declared illegal in Washington, D. C., we should integrate the retarded and the non retarded into the same classes.	—	—	—	—
42. There is no basis in fact for the idea that the retarded child's misfortunes have made him more understanding than the average non retarded child.	—	—	—	—
43. I would rather not have retarded children live in the same apartment building I live in.	—	—	—	—
44. Laws enforcing schools to admit retarded children often violate the rights of the individual who does not want to associate with retarded children.	—	—	—	—
45. Although social mixing of retarded and non retarded children may be right, it is impractical until retardates learn to accept more "don'ts" in the relations between boys and girls.	—	—	—	—
46. It is a good idea to have separate classes for retarded and non retarded children.	—	—	—	—
47. The retarded child's own experiences with unfair treatment has given him a sensitivity and understanding that will make him an excellent worker with non retarded people.	—	—	—	—
48. I would be willing to introduce retarded children visiting my home to friends and neighbors in my home town.	—	—	—	—
49. Regardless of his own views, a nursery school principal should be required to admit retarded children.	—	—	—	—
50. If I were retarded, I would not want to go places where I was really not wanted.	—	—	—	—

STOP

Interpretation

In this section, there will be a discussion of the meaning of subtest scores.

Integration-Segregation	Overfavorableness
1	2
6	7
11	12
16	17
21	22
26	27
31	32
36	37
41	42
46	47

Social Distance	Private Rights
3	4
8	9
13	14
18	19
23	24
28	29
33	34
38	39
43	44
48	49

Subtle Derogatory Beliefs
5
10
15
20
25
30
35
40
45
50

In the summer of 1972, classes for EMR students in Warren, Ohio at the Market High School (an all EMR school program) were phased out and students were integrated in the mainstream of education and in traditional special education classes. Special education and regular education teachers were involved in an intensive summer workshop designed to assist the integration process.

In December 1972, 300 teachers in the junior high and senior high buildings receiving these EMR students were requested to voluntarily fill out the MASMR. One hundred thirty three MASMR's were returned (44%). Eighteen of these were special education teachers; 115 were regular education. Twenty were involved in the summer workshop; 113 had not been involved. Of the twenty who were involved in the workshop, six were special education teachers, and fourteen were regular education teachers.

Within the five sub areas, scores may range from 0 - 40. Six variables were recorded per respondent.

1. Special Ed - Regular Ed
2. Summer Program - Not Summer
3. Teaching Experience: - less than one year - more than 8
4. Married - Single
5. Male - Female
6. Bachelor Degree - Master Degree

Individual non correlated t tests were run for each of the groups of scores for the five sub tests (5 x 6 = 30 t tests). Running multiple t tests such as this increases the probability of significant scores by chance alone. Table I lists the sub tests and groups which were significant at the .05 level.

TABLE 1

SIGNIFICANT MASMR SCORES

	n				t > .05 1.96
SDIS	18	Special Education	33.22	σ = 4.28	t = 2.24
	115	Regular Eudcation	30.88	σ = 2.34	
PRRT	18	Special Education	29.17	σ = 5.44	t = 2.21
	115	Regular Education	26.15	σ = 3.76	
SDIS	20	Summer Program	32.20	σ = 2.55	t = 1.98
	113	Not Summer	31.01	σ = 1.18	
PRRT	20	Summer Program	30.15	σ = 3.40	t = 4.88
	113	Not Summer	25.92	σ = 3.95	
SUBD	20	Summer Program	25.75	σ = 4.87	t = 2.39
	113	Not Summer	22.95	σ = 3.49	
INSE	76	Bachelor Degree	24.07	σ = 3.15	t = 2.11
	51	Masters Degrée	25.84	σ = 5.35	
OVER	76	Bachelor Degree	21.20	σ = 2.09	t = 3.99
	51	Masters Degree	19.18	σ = 3.14	

RESULTS

Special education teachers scored significantly higher than regular education teachers on the social distance factor. This indicates that they do not mind recognizing, living near or being associated with retardates more than regular education teachers. Special education teachers also felt that the needs of the retarded overshadowed the private rights of school personnel, landlords, etc. more than regular education teachers.

Persons involved in the summer workshop (6 special education, 14 regular education) responded the same way as the special education teachers above. In addition they were not as subtly derogatory to the mentally retarded as the non workshop personnel.

The statistically significant scores between the bachelor degree personnel and masters degree personnel indicate that the masters level personnel were more in favor of integration of the retarded and were less willing to attribute over-favorable characteristics to the retardate.

DISCUSSION AND CONCLUSION

This study has severe limitations relative to the statistical analysis. If the statistics could be assumed to be valid, special education personnel appear to have more accepting attitudes than non special education personnel. Those persons involved in the summer workshop have much better attitudes than those not involved. Masters degree personnel have more realistic attitude than bachelor degree personnel. Care must be noted that these conclusions are stated very cautiously and no cause effect relationship is intended. It seems clear, however, that the MASMR opinion inventory is sensitive enough to measure different attitudes of different school personnel.

OBJECTIVE TESTING RESULTS

HOW TO READ THIS OUTPUT

1. GRAPHS - 1971-1972 data.

The sample sizes are small. In about 90% of the cases, only one or two classes took the objective. The following chart shows which objectives have been taken by three or more classes.

NO. OF CLASSES	OBJECTIVE	OBJECTIVE	OBJECTIVE
9	D590		
6	C039I	C116P	D417J
	D531		
5	B951	C640J	C641J
	C949P	D224I	D248I
4	C031I	C041I	C204I
	C610J	C647J	D111I
	D419	D600	D617S
	E222		
3	B854P	B935	B937
	C032I	C037I	C081I
	C115P	C292P	C463J
	C508	C611J	C865J
	D251		

b. What to look for -

There are two graphs and one table for each objective. If the table shows that a significant number of students took that objective, then the graphs will be valid. It is, of course, dangerous to draw conclusions from the graphs alone, as a particularly "nice" curve could be generated by one or two students. The table, then, indicates the number of students who took that objective. The left hand graph shows the T1 results. The X's show the percentage of students passing T1 while the O's show the percentage of students failing T1. If no students at a mental age level took T1 for that objective, the line should be blank.

The right hand graph is a bit different. The .'s (periods) represent the percentage of students passing both T1 and T2. The X's represent those students who passed T2, but either failed T1 or did not take T1. The O's represent those students who failed T2. They may or may not have passed or taken T1. Therefore, the periods and X's together represent the percentage of students who passed T2.

c. Answers to obvious questions.

1. Why is the Content Outline Code missing for some of the objectives?

   - Simply because we had no Content Outline Code on record that corresponded to that objective.

2. Why do some classes appear to have only one or two students in them?

   - Because there was a great deal of bad data for that class. In some cases whole classes had to be eliminated. We decided to display the objective anyway, to indicate that it had been used, even though we have no data for it.

3. What is the resolution of the graphs?

- The resolution is 2%. As each percentage is calculated it is rounded to the nearest even integer between 0 and 100. So if 1 out of 3 passed T1, there would be X's to 34% on the left side. If 2 out of 3 had passed, there would be X's to 66%. Zero percent is left off for readability.

2. GRAPHS - 1972-1973 data.

a. Warnings.

This differs in some respects from the 1971-1972 graphs. There is much less missing data. Very few of the IQ's and birthdates are missing. Most of the class codes, however, are missing. This means that the "number of classes" line on the graph is usually inaccurate. It also appears that in 98% of the cases, if a student passed T1, he was not given T2. This means that there are very few graphs with periods. For T2, only the students who failed T1 were given T2. This implies that while there are usually larger sample sizes for T1 with the 1972-1973 data, the T2 sizes are smaller since they represent a subset of T1. Note that the Content Outline Codes appear on most of the graphs.

b. What to look for -

Mostly the same thing as with the 1971-1972 data. Here, however, the periods are few and far between.

c. Answers to obvious questions.

1. Why do there appear to be upwards of 30 or 40 students in some classes?

- Since the class codes were missing in such a high percentage of cases, there was no way to tell which class a particular student was in. Therefore, all those taking the objective were assumed to be in one class unless otherwise specified.

3. OBJECTIVES LIST - 1971-1972

This is straightforward and self-explanatory. If used in conjunction with the graphs for 1971-1972, the exact classes taking a particular objective can be determined. A summary at the end is also given for the user's benefit. A "testing" is defined to be one student taking one objective. The following statistics can be easily derived by hand -

1. Average number of objectives taken by each student = $\frac{\text{\# testings}}{\text{\# students}} = \frac{9543}{983}$

   $= 9.71$

2. Average number of students taking each objective = $\frac{\text{\# testings}}{\text{\# objectives}} = \frac{9543}{595}$

   $= 16.04$

3. Average number of objectives taken by each class = $\frac{\text{\# objectives}}{\text{\# classes}} = \frac{595}{148}$

   $= 4.02$ (comparing to 1. this implies overlap)

4. Average number of students in each class = $\frac{\text{\# students}}{\text{\# classes}} = \frac{983}{148} = 6.71$

5. Average number of testings in each class = $\frac{\text{\# testings}}{\text{\# classes}} = \frac{9543}{148} = 65.16$

4. OBJECTIVES LIST - 1972-1973

This is not so straightforward because of the missing class and student codes. About all that can be derived from this is the number of students taking each objective. In some rare instances, the class codes are given and are then useful as they were with the 1971-1972 list. Of the summary statistics at the end, only the number of objectives and the number of testings are valid. Statistic 2 from above would be:

$$\text{Average number of students taking each objective} = \frac{\text{\# testings}}{\text{\# objectives}} = \frac{3922}{250}$$

$$= 15.69$$

APPENDIX C

DISTRIBUTION OF BEHAVIORAL OBJECTIVES

	Sets
Akron Satellite Center	55
Ashtabula Satellite Center	31
Athens Satellite Center	25
Hamilton County Satellite Center	43
Louisville Satellite Center	44
Mentor Satellite Center	43
Toledo Satellite Center	33
Tuscarawas Satellite Center	33
Dayton	15
Ohio State Department of Education	
Jack Showers	1
Frank Walier	1
Sam Bonham	1
Joe Todd	1
Jacque Cross	1
Geraldine Parham	1
Tom Schied	1
Richard Dragin	2
Universities	
Bowling Green State	1
University of Toledo	1
University of Cincinnati	1
Kent State University	1
Ohio State University	1
Ohio University	1
Wright State University	1
Youngstown University	1
Akron University	1
Lake Erie College	1
Consultants	
Dr. Edward Meyen	1
James McGettigan	1
Bureau of Education for the Handicapped USOE	1
University Microfilms, Ann Arbor, Michigan	1
ERIC Clearinghouse	1
Instructional Resource Centers	
Edward Stewart, Milan, Ohio	5
Norman Zappia, Dayton, Ohio	5
Irma Thomas, Columbus, Ohio	5
Linda Bower, Athens, Ohio	5
Helen Castle, Hillsboro, Ohio	5
Ronald Boley, Galion, Ohio	5
Sheryl Nelson, Lima, Ohio	5
Mentor Board of Education	1
Dr. Noffsinger	1
Coordinating Center	2
Mentor Printing (reference)	1
	386
Remaining in inventory	14
Total volumes	400

EMR TEACHER PREDICTION OF STUDENT PERFORMANCE

These studies were conducted to find out how well teachers of educable mentally retarded children in Ohio could predict success of their children on specific behavioral objectives. It is assumed that prediction of success will have an effect on teacher expectancy and thus teacher prediction and teacher expectancy are very closely related. (Rosenthal, R. 1966; Thorndike, R. L. 1968; Gozali, J. and Meyen, E. 1970.)

Procedure Number 1 - During the 1971-72 school year, more than 1,000 teachers of EMR students in Ohio were involved in an ESEA Title III project, "Program Models for EMR Students." These teachers represent the entire State in that they teach in urban, suburban, rural farm, and rural Appalachian areas in more than 50 counties and 200 school districts. These teachers, primary through senior high level, were each involved in a minimum of 15 hours of in-service education on identifying, writing, and field testing behavioral objectives. In the field testing process, each teacher chooses objectives from a bank of objectives and predicted whether each child in her class would pass or fail the objective. After recording this prediction, she actually pre-tested each child and recorded their pass or failure performance. She was instructed to then teach only the students who failed the pre-test. This prediction - pre-test procedure was only part of a total teaching strategy.

Eighty teachers were randomly selected from those who field tested more than 3,500 objectives (20 teachers at each level, primary through senior high.) Four objectives were randomly selected from each of those submitted by each teacher (total 320 objectives, 3,287 prediction - pre-test situations.)

Procedure Number 2 - Because of the possibilities of teacher bias in the pre-test situation, a second sample of behavior was collected during the 1972-73 school year. Ten EMR supervisors of teachers in the same geographic areas with similar training were requested to do the pre-testing section of this procedure with 10 of their teachers. Therefore, 100 teachers (primary through senior high) predicted the performance of each of their students on two objectives choosen by the EMR supervisor (200 objectives, 1,295 prediction - pre-test situations.) The supervisor then pre-tested each child on each objective and recorded the performance.

Over-prediction means that a teacher predicted success but the student failed. Under-prediction means that a teacher predicted failure but the student passed. Correct prediction included a pass-pass or fail-fail prediction - pre-test situation.

Results: Table 1 indicates the percentage of correct, over-prediction and under-prediction scores for the first study and the second.

A similar pattern was found even when EMR supervisors did the pre-testing. That is teachers were correct most of the time. If they were in error, they over-predicted or expected more of their students than was possible. Errors through under-prediction of student performance was found only 7.4% of the time. When one combines the correct prediction and over-prediction, EMR teachers in Ohio have a realistic expectation or over-expectation about 93% of time. Additionally, it may be noted that since there is no significant difference in patterns between the first and second study, one could assume that teachers were reporting honestly and with little bias during first study.

Further analysis of the data indicated that there was no significant difference in this pattern for geographical situation (urban, rural and suburban,) subject content areas, or level of instruction (primary, intermediate, junior high, and senior high.)

Conclusions: Based on this representative sample of teachers of EMR students in Ohio, the following conclusions can be made:

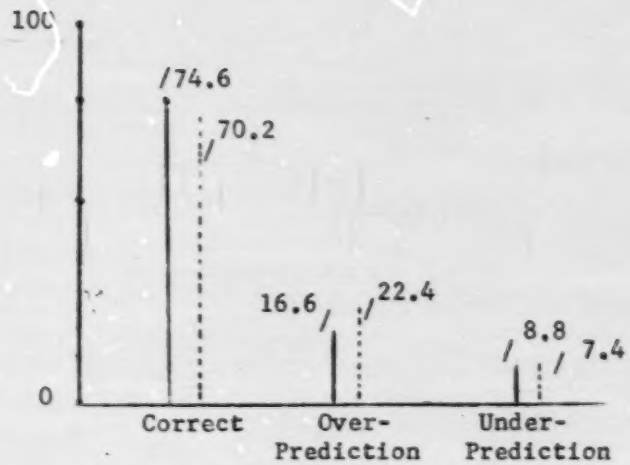
1. EMR teachers have a realistic expectation of their student's performance about 72% of the time.

2. When they are in error, they tend to over-predict or expect too much.

This study was supported by funds made available through ESEA Title III Project #45-73-418-1.

TABLE 1

Percentages of teacher prediction scores



Teacher Pre-test _____
Supervisor Pre-test - - - - - -

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SUMMARY STATEMENT BY VALIDATORS

Innovativeness

The procedures that were followed in the provision of in-service teacher education (practice) and the system that was designed to effect changes in teacher behavior are integral to the innovative character of the project. The use of an ongoing workshop for teachers in widely separated geographic areas to train them to write and to field test behavioral objectives was the vehicle for promoting changes in teacher attitudes and teacher practices. The project used existing Regional Special Education Centers as a base for a systems approach to in-service teacher workshops.

The quality of leadership exemplified by the project director was, in part, responsible for the educational climate that enabled the teachers of EMR students in the participating geographical areas to identify themselves with a significant program and to interact with each other. Traditional materials were used to generate measurable behavior objectives which may be used to determine increments of pupil gain. The combination of innovative characteristics of the project can be summarized as process which includes the development of products.

Evaluation

This project appears to have been effective in terms of achieving the objectives submitted for validation. Pre and post tests given to teachers participating in the in-service workshops consistently reported significant gains (at the .05 level 7 more). The utilization of IMC's (Instructional Materials Center) as vehicles for change, extention of in-service activities to an increasing population of teachers, as well as the development of a criterion reference assessment instrument all appear to have been achieved.

Informal conversations with participating teachers (workshop) revealed that significant behavioral changes also appear to have occurred in their teaching behavior. Little empirical evidence exists, however, that would substantiate this behavior change.

Perhaps a research design that would focus on the pre and post observations of participating versus non participating teachers would be useful in the documentation of the behavioral changes that appear to have occurred.

Although the data collective instruments developed by the project appear to have face validity, little has been done to establish reliability (used here in the statistical sense.)

In summary, this project does appear to have been effective in achieving its objectives. It is important to note, however, that the changes that seemed to have occurred, probably are more related to process variables rather than the products produced by the project.

Cost Effectiveness Analysis

1. Development Costs - An initial grant of $420,000 was followed by a grant of $460,000 in the second year to develop a comprehensive set of behavioral objectives for EMR children from primary through high school. Fourteen content areas were addressed by approximately 1,000 selected teachers from eight instructional resource center areas representing urban, suburban and rural school districts across the State.

These teachers were taught to write, teach and evaluate through field testing these behavioral objectives. Fifteen volumes each containing 450 behavioral objectives for EMR children represent the final product. A special achievement inventory which measures the EMR students learning of the behavioral objectives has also been developed.

2. Initiation Costs - The major thrust of the project was the involvement on a state-wide basis of certain teachers of EMR man in-service education process which resulted in the development of 15,000 behavioral objectives. This total number was reduced to 6,750 objectives and publishes in fifteen volumes. The achievement inventory will be used in the future to measure pupil learning based on mastery of the behavioral objectives.

Costs for initiation are based upon establishment of project on a regional basis within a state. A budget of $178,700 for one year is proposed which will cover essential staff consisting of a state-wide coordinator, full time secretary, a business manager, a regional supervisor for each of eight regions and part time secretarial help. Teacher stipends for 25 teachers per region attending four sessions each and paid on a basis of $5 per hour are provided. Material and supplies, telephone and alike are included also. Not included but also to be considered are allowances for travel needs and contractual services for consultant services and collection of data base. These items were not included because of the dependence of cost on the area where the project would be replicated. Also, the need for data base and consultant may not be an initial consideration when existing project material is utilized in the teacher education process. These items may be needed in the future.

3. Operation Cost after Installation - A cost figure of $200,000 is proposed for continuation of the project. This figure provides for increased salaries for staff retained in the project. Teacher involvement is continued for further refinement of the behavioral objectives and the refinement and use of the special pupil achievement inventory.

Exportability

The exportability of the products of this project, defined as changes in behavior of the teacher-learners and the materials created in the context of the processes used may be viewed as high.

The network of IMC's was a significant factor in facilitating a state-wide project. Other states, without such a network could apply the processes of this project to other regionalized agencies, e.g., institutions of higher learning, intermediate units, etc.

This project can only be viewed as a state-wide activity, generated, supported and ultimately put to use in those terms. The LEA served as a vehicle for its fiscal and operational aspects.

High development costs have been spent and states which may appropriate the ideas and materials developed here will not be required.

The nature of the project permits it be done with existing staff with no special equipment or physical facilities. This should make the project attractive to any state.

States interested in this project should not be misled by the project title and certain of the objectives which directly allude to "models for EMR students." This title refers to instructional organizational configuration which minimizes the main thrust of the project, i.e., training teachers to write behaviorally based instructional objectives. The by-product of this activity in the form of a massive array of materials might be viewed as ready for refinement by subsequent users.

Major Criteria Ratings: Summary Findings

NOTE: Take the sub-total from each of the four criterion items from the previous sections and apply it to the appropriate scales below. Take the score on which your sub-total rating falls and record it in the appropriate column to the right.

		Validator Rating
a. Innovativeness		
SCORE	5 10 15 20 25	
Subtotal Rating	5 10 15 20 25 Slightly Innovative — Moderately Innovative — Highly Innovative	25
b. Effectiveness/Success		
SCORE	5 10 15 20 25	
Subtotal Rating	(0-18) (19-36) (37-54) (55-72) (73-85)	25
c. Cost-Effectiveness Analysis/Economical		
SCORE	5 10 15 20 25	
Subtotal Rating	(Less than 10) (11-17) (18-24) (25-31) (32-38)	20
d. Exportability		
SCORE	5 10 15 20 25	
Subtotal Rating	(1-15) (16-30) (31-45) (46-60) (61-75)	25
	GRAND TOTAL	95

Projects will not be nominated for validation unless they have a minimum of 20 points on each subscore and a minimum of 80 total points.

Please provide a one page typewritten narrative statement covering any areas not addressed in the preceding questions.